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TYPES OF ELEMENTARY TEACHING AND LEARNING

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BY

SAMUEL CHESTER PARKER

Professor of Educational Methods in
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HISTORICAL IDEAS MADE CLEAR AND VIVID BY A DRAMATIC ASSEMBLY PROJECT

See discussion on page 9

TYPES OF ELEMENTARY TEACHING AND LEARNING

INCLUDING PRACTICAL TECHNIQUE AND SCIENTIFIC EVIDENCE

BY

SAMUEL CHESTER PARKER

PROFESSOR OF EDUCATIONAL METHODS IN THE UNIVERSITY OF CHICAGO

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TO
THE SISTER AND BROTHERS
WHOSE SACRIFICES
SECURED ME A HIGHER EDUCATION

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PREFACE

Origin.—This textbook is the outcome of eighteen years' experience in conducting courses dealing with methods of teaching in elementary schools—five years in the State Normal College at Oxford, Ohio, and the remainder in the School of Education of The University of Chicago.

A practical volume.—The book contains many examples of methods and devices actually used in progressive elementary schools for training pupils in various types of learning, such as handwriting, spelling, reading, arithmetic, problem-solving, expression, enjoyment, etc. These examples of teaching are frequently so refined in technique as to interest and aid very experienced teachers; yet they are described in language simple enough for the inexperienced normal-school or college student to comprehend and appreciate.

Supported by scientific evidence.—In addition to this abundant practical material, the book contains much of the scientific evidence that has been developed to justify and interpret the progressive methods set forth. Thus it joins practical technique and scientific evidence—the only safe combination for organizing and propagating valid improved methods of teaching.

Scientific indebtedness.—The author is greatly indebted to his early studies under Professors C. H. Judd, E. L. Thorndike, and John Dewey, and to years of reading of the works of William James, for many of the general points of view and specific doctrines found in the text. He has been aided also by frequent discussions with his colleagues in the School of Education.

From the scientific monograph literature, such as the Yearbooks of the National Society for the Study of Education, considerable help has been obtained on special problems.

Practical indebtedness.—From the teaching in the Elementary School of The University of Chicago, much of the practical material in the text has been derived. Sometimes large sections of a chapter have been written around observations of skilled teachers in this school. In the body of the text I have everywhere tried to assign appropriate credit to the particular teacher whose skilled technique is being described. Another generous source from which I have derived practical examples is the teaching described by some of the experienced teachers in my summer classes. To all these coöperating contributors I am very grateful for the help rendered.

Illustrations.—Photographs and other materials for pictures have been kindly furnished by many persons. In this connection I am especially indebted to Principal Harry O. Gillet, of the University of Chicago Elementary School, for numerous excellent photographs of its activities which were taken in 1916, when the university celebrated its twenty-fifth anniversary.

Relation to the author's "General Methods."—This volume supplements the author's "General Methods of Teaching in Elementary Schools," published in 1919. Together the two volumes cover most of the phases of elementary school-teaching commonly discussed in courses on methods of teaching. There are, however, certain general principles of organizing instruction which have been omitted and which I may find time to discuss at some future date.

SAMUEL CHESTER PARKER

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In the longer chapters the major divisions are designated by Roman numerals and are referred to in the text as "sections."

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The books from which quotations are made in the text are included in the bibliographies which are printed at the ends of the chapters. The source of each quotation is indicated (usually at its end) by two figures in parenthesis. The first figure refers to the book by its number in the bibliography at the end of the chapter, and the second figure refers to the page. Thus, (4: 76) means page 76 in the fourth book in the chapter bibliography. This system has been adopted in order that the instructor or student may verify or follow up any quotation without the ordinary reader's being distracted by numerous footnote references which are unimportant in his reading.

TYPES OF ELEMENTARY TEACHING AND LEARNING

CHAPTER I

INTRODUCING THE VARIED TYPES OF TEACHING AND LEARNING

Practical technique plus scientific evidence.—This book is designed to assist teachers in directing the various types of learning that pupils carry on in elementary schools. Hence it contains many practical examples of actual teaching described in detail. In most cases the scientific evidence justifying these practices is also presented.

Familiar and unfamiliar types.—Some of the types of teaching and learning discussed here are familiar to every beginning teacher, while others may be comparatively strange to those who have not thought much about recent improvements in teaching. Among the more familiar types are learning handwriting, spelling, beginning reading, and arithmetical calculation. The less familiar types include learning to understand social life and learning to be skillful in problem-solving, in silent reading, and in communicating ideas to an audience. Another unfamiliar type is learning how to increase the harmless enjoyment of leisure. Finally, learning to behave morally is familiar to many persons in its religious aspects but comparatively unfamiliar in the civic aspects which our public schools are now called upon to emphasize.

Contrasting types. *Romance versus science.*—Between some of these types of teaching and learning there are such great contrasts that a teacher may be quite strong and efficient and sympathetic in one of them, and at the same time be weak

and inefficient and unsympathetic in another. Perhaps the best example of such a contrast is found in the antagonism between the artistic type of temperament, which is important in the harmless enjoyment of literature, and the cold-blooded, scientific type, which is strong in problem-solving. Frequently poets with extremely æsthetic temperaments have rebelled against the scientific thinkers and expressed their antagonism in very strong language, as evidenced in the following stanzas by Poe, in the first of which he expresses his love for romance, for the contemplative play of the artist, while in the other he scolds the scientist. If you are not fond of poetry, try reading these verses aloud to get their effect, remembering that "romance" is accented on the second syllable (*ro mance'*) and that "paroquet" may be pronounced *par'o kay* for riming purposes.

ROMANCE

Romance, who loves to nod and sing,
With drowsy head and folded wing,
Among the green leaves as they shake
Far down within some shadowy lake,
To me a painted paroquet
  Hath been—a most familiar bird—
Taught me my alphabet to say—
  To lisp my very earliest word
While in the wildwood I did lie,
A child—with a most knowing eye.

SONNET—TO SCIENCE

Science! true daughter of Old Time thou art!
  Who alterest all things with thy peering eyes.
Why preyest thou thus upon the poet's heart,
  Vulture, whose wings are dull realities?
  How should he love thee? or how deem thee wise,
Who wouldst not leave him in his wandering
  To seek for treasure in the jewelled skies,
Albeit he soared with an undaunted wing?

Hast thou not dragged Diana from her car?
  And driven the Hamadryad from the wood
To seek a shelter in some happier star?
  Hast thou not torn the Naiad from her flood,
The Elfin from the green grass, and from me
The summer dream beneath the tamarind tree?

Measure your own sympathies.—Perhaps you have known among your own teachers some who have been narrowly æsthetic or narrowly scientific. It would be instructive to measure even yourself in this regard. You might begin by noting with whom you sympathize in the following poem—the logician or the poet. Remember to read it aloud or at least to enunciate each syllable fully to yourself.

TO A LOGICIAN

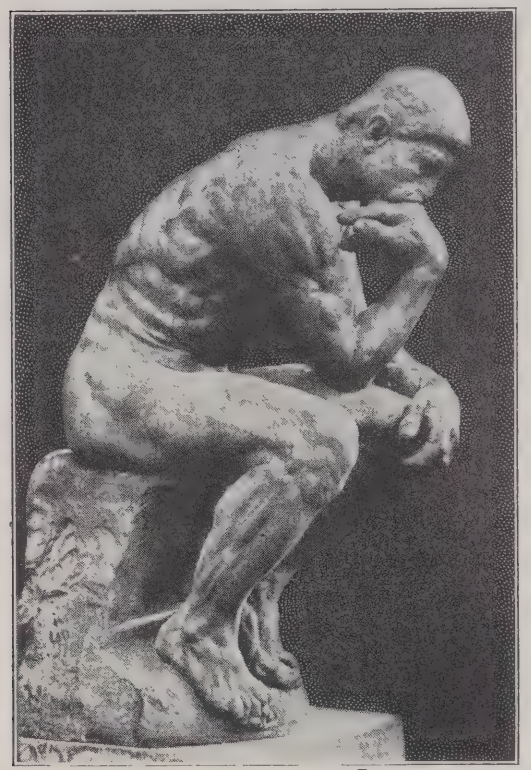
By Dana Burnet

Cold man, in whom no animating ray
Warms the chill substance of the sculptor's clay;
  Grim Reasoner, with problems in your eyes,
Professor, Sage—however do they call you?
Far-seeing Blindman, fame shall yet befall you;
  Carve you in stone—that winter of the wise!—
And set you up in some pale portico
To frown on heaven above, on earth below.

I shall make songs and give them to the breeze,
And die amid a thousand ecstasies!
  I shall be dust, and feel the joyous sting
Of that sweet arrow from the bow of Time
  Which men call Spring.
And out of my dead mouth a rose shall come like rime!
  But you, in your eternal state of snows,
Shall thrill no more to life's resurgent flood,
  Nor cast death's laughter into April's rose!
You shall be marble, who were never blood.[1]

[1] Quoted from *Harper's Magazine* with the author's permission.

Moral types symbolized by Moses and Lincoln.—Another well-defined type of teacher whose sympathies lie strongly with one of our types of learning is the great moral leader. In the pictures which we have reproduced on pages 4 to 6, if Rodin's "The Thinker" may be said to symbolize problem-solving, and the "Reading from Homer" to symbolize harmless enjoyment, then the picture of Moses with the tables of stone may be said to symbolize moral behavior in its religious aspects, while Lincoln and his Gettysburg Address symbolize moral behavior in its highest civic aspects. Throughout the ages such great moral leaders and teachers have been most highly esteemed. Among our everyday teachers we occasionally find those who are noted for their efficiency and service in directing the learning of pupils along moral lines. Needless to say, all of us should appreciate their work, and should endeavor to develop in ourselves some skill akin to theirs.



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PROBLEM-SOLVING TYPIFIED BY RODIN'S FAMOUS STATUE "THE THINKER"

Do you suppose his knotted muscles suggest that he is wrestling with a knotty problem?

Develop your talents but keep your balance.—If you are naturally talented in some type of learning, your teaching in this line will probably be more effective and interesting than in

the types of learning in which you are weak. Hence, if you have a special talent for reading, or problem-solving, or expression, or music, or moral leadership, it is important to develop this as far as possible in the direction of skilled teaching. The same amount of effort spent by you in such a line of talent will bring much greater success than in lines in which you are

HARMLESS ENJOYMENT OF LEISURE TYPIFIED BY "A READING FROM HOMER"

Note the attitudes of leisure and enjoyment

not talented. On the other hand, unless you are engaged in special departmental teaching in which only your special talents are needed, you should not neglect the other types of learning, which may be just as important in the lives of your pupils and in the world at large. For example, if you are naturally an effective reasoner but not strong in moral leadership, it does not follow that you should countenance cheating in examinations or fail to have pupils read inspiring moral classics such as Lincoln's Gettysburg Address. One of the greatest lessons every teacher needs to learn is so to keep her balance that she

gives due emphasis to each of the varied types of learning for which her position may make her responsible.

Read first the chapters that interest you, but neglect none.— Similarly, in perusing the chapters that follow, it is probably

RELIGIOUS-MORAL SERVICE TYPIFIED BY MICHELANGELO'S "MOSES"

Think of the stupendous religious-moral influence of the Ten Commandments throughout the ages

CIVIC-MORAL SERVICE TYPIFIED BY SAINT GAUDENS'S "LINCOLN"

Lincoln's Gettysburg Address is recognized as one of the finest expressions of democratic ideals and duties

wise to read first those that interest you, but eventually to canvass all, in order to get a balanced view of all the types of learning. In choosing chapters that may interest you, if you are keen to get early some impressions of fine, artistic teaching, of wonderful teachers in action, I would advise you to begin

with Chapter V, on beginning reading, and Chapter X, on problem-solving. On the other hand, if you are intent on learning about scientific studies of teaching, you might begin with Chapters III and IV, on handwriting and spelling. If interested in history and community life, begin with Chapter IX, on understanding social life. If interested in English, begin with Chapter XII, on communicating ideas, and Chapter XIV, on harmless enjoyment. If especially interested in teaching reading, you may read the three chapters (V, VI, and XI) which are devoted to discussions of oral and silent reading.

Perspective view of types of learning.— A perspective view of all the types of learning may be derived from the following outline, in which the organization into three main parts makes the total arrangement easy to grasp:

I. Four Elementary Skills
   1. Handwriting.
   2. Spelling.
   3. Beginning reading.
   4. Arithmetical calculation.

II. Four Thoughtful Processes
   1. Understanding social life.
   2. Problem-solving.
   3. Skillful silent reading.
   4. Communicating ideas.

III. Recreational and Moral Behavior
   1. Habits of harmless enjoyment.
   2. Civic-moral ideals and efficiency.

Supplement with knowledge of general methods.—Knowledge of these special types of learning should be supplemented with an understanding of the more general aspects of teaching, which the author has treated in his "General Methods of Teaching in Elementary Schools." A brief summary of the latter is contained in the following general principles:

FUNDAMENTAL POINTS OF VIEW

1. In our interdependent democratic American society the aim of public education is to increase the sum total of happiness for the multitudes.

2. To this end the schools train for health, enjoyment of leisure, good will, and social service by developing in children appropriate information, habits, ideals, and abiding, many-sided interests.

3. The effective organization of such training involves reproducing in schools a prominent feature of our complex social life; namely, effective business management for economy in routine affairs.

4. The selection of the subject matter that is to be used to attain the broad social aims of the school should be made from the social viewpoint. The material should be clearly adapted to present-day needs and conditions, and the relative values of the topics should be scientifically determined.

5. Such scientific determination requires investigations that are mathematically precise, objective, verifiable, expert, and impartial.

6. Progressive textbooks and teachers organize much of the selected subject matter around large central topics and begin with units that are meaningful to pupils and adapted to their capacities, interests, and processes of learning at each age.

GENERAL ASPECTS OF LEARNING

1. Each pupil learns through his own *responses*. Hence what each pupil does is the great factor in learning and teaching.

2. The pupil's response is greatly influenced by his *past experience*. The teacher must build upon this experience and enrich it.

3. The pupil's response is influenced also by his *present frame of mind*. Hence the teacher must arouse in him appropriate lines of thought and mental backgrounds and attitudes.

4. Among the most important of these attitudes are *attention* and *interest*. Attention to school activities is best secured by utilizing the children's active interests in romance and adventure, animals and persons, social approval, rhythm, rime, jingle and song, plays and games, problems, constructions, collections, communications, etc.

5. One of the features of school work that has been most improved through applying the above principle is *drill*. It has been

found that ten minutes a day of scientifically organized, snappy, interesting drills, adapted to the individual needs of pupils, suffices to develop the necessary skill in any one of the formal subjects; consequently, most of the day is left free for the other kinds of learning.

6. The adaptation of drills to the varied needs of individual pupils gives us one of our best examples of the *differentiated instruction* which is necessitated by the great differences in the inborn capacities of pupils and in their opportunities for social usefulness.

7. Pupils who are gifted in practical planning are given special opportunities through the *project* methods that have recently become popular.

Wonderful teachers described. *Emulate them.*—In several places in the text you will find descriptions of wonderful teachers actually at work. Such experts are so artistic in their performances that they deserve to become famous, like notable artists in music, the drama, painting, and other arts. If you have natural talent for teaching, you may also become an artist teacher, particularly through imitation of such model performances. You will find the fullest descriptions of such actual teaching on the following pages: 77 ff., for the teaching of beginning reading; 279 ff., for problem-solving; 352 ff., for silent reading; 411 ff., for communicating ideas; and 503 ff., for moral training.

The frontispiece: a dramatic assembly project.—The dramatic scene pictured in the frontispiece illustrates *project-teaching*, a kind of activity that has recently become popular in progressive schools. In such teaching the pupils plan, devise, and contrive some practical activity,—something to be done. Hence *a pupil project is some practical pupil activity planned by the pupils.* Assembly programs planned and prepared by the pupils offer rich opportunities for such practical contriving, devising, and scheming. The pupils shown in the frontispiece had been studying medieval history in The University of Chicago Elementary School. When it came their turn to prepare a program for the assembled school, they chose some incident from

their historical study, planned the actions for a series of scenes, wrote the dialogue, made some of the costumes and chose others from the school costume box, tried out various children in the acting, chose the best ones, rehearsed a few times, and then delighted and instructed the school with their performance. As indicated under the frontispiece, such practice is particularly helpful in clarifying and vivifying historical ideas. For further examples of the preparation of such assembly projects see pages 242, 418.

In other publications the author has presented a more complete discussion of project-teaching as he interprets it; namely, in

1. *General Methods of Teaching in Elementary Schools* (Ginn and Company, revised edition, 1922), Chapter XII.

2. Project-Teaching: Pupils planning Practical Activities. *Elementary School Journal,* January and February, 1922, Vol. XXII, pp. 335 ff. Reprinted separately and sold by the Department of Education, The University of Chicago, for 25 cents, postpaid.

PART I. FOUR ELEMENTARY SKILLS

CHAPTER II

INTRODUCTION TO PART I

Our old friends, the three R's.—In Part I of the book we shall be concerned primarily with the teaching of the three R's (reading, 'riting, and 'rithmetic) and spelling. Since our discussion of the teaching of reading is rather long, we have broken it into two chapters. Hence, following this introductory chapter we shall have five chapters with the following titles:

Handwriting and Other Motor Skills
Learning to spell Four Thousand Words
Beginning Reading
Scientific Investigations of Reading
Skill in Arithmetical Calculation

Automatic skills to be emphasized.—In discussing each of these types of learning we shall emphasize the desirability of giving the pupil sufficient practice to enable him to carry on each process automatically. In the case of handwriting this means that the pupil must attain sufficient skill to write legibly and rapidly, without his attention's being distracted from what he desires to express. He must finally be able to spell some four thousand common words correctly without indecision when he uses them in writing letters or compositions. In reading he must be able freely to recognize and grasp the meanings of simple phrases and sentences, while in arithmetical calculation he must add, subtract, multiply, and divide accurately and rapidly. Since we are thus interested here primarily in the

development of automatic skill in these four rather simple and elementary types of learning, we have entitled this part of the book "Four Elementary Skills."

A cold scientific plunge.—Owing to the fact that the materials and processes are comparatively simple in handwriting, spelling, beginning reading, and arithmetical calculation, considerable progress has been made in scientifically investigating methods of learning and teaching these subjects. Consequently we shall have numerous occasions in Part I to report some of these rather cold-blooded scientific studies of how pupils learn. We appreciate the fact that many readers dislike such scientific matters, but we hope that they will take the cold scientific plunge which the text frequently invites, in order to stimulate their scientific circulation and give a healthy scientific tone to their thoughts about teaching.

Pleasant relief in examples of charming technique.—Frequent relief will be provided for the nonscientific reader, however, through accounts of charming examples of actual teaching by skillful teachers. The most elaborate description is found in the chapter entitled "Beginning Reading," in which we shall follow in detail the fascinating experiences of children who through artful methods are being introduced to the fairyland of children's books. Even in our most cold-blooded chapter, however (namely, the next one—on handwriting), we shall begin with some picturesque examples of actual teaching, in order to invite the reader into the chapter.

CHAPTER III

HANDWRITING AND OTHER MOTOR SKILLS

Main points to orient reader.—In order to give the reader a general notion of what is to come, each long chapter is opened with a brief statement of its main points. These should merely be scanned rapidly at the first reading.

Main points of the chapter.—1. Actual handwriting lessons described at the beginning of the chapter illustrate such points of technique as the following:

a. Instruction should begin with large blackboard writing.

b. Nursery rimes and other rhythmic devices aid in developing smooth writing and motor control.

c. Encouraging remarks with good models for imitation aid slow pupils.

2. Ready-made systems give most teachers their technique of teaching handwriting.

3. These systems should be scientifically organized, but frequently they are poorly conceived.

4. Experimental laboratory investigations which show how handwriting movements are made and learned determine the value of current methods and systems.

5. Such investigations show, for example, that the current methods of drilling pupils to make the letters without finger movements are fallacious.

6. Scales for measuring handwriting enable us

a. To define clearly what quality of handwriting is socially desirable and

b. To determine how successfully teachers are achieving the standard scores desired in each grade.

7. From such scientific studies of handwriting we are able to derive a number of general principles of teaching, particularly concerning the value of scientific research in destroying educational quackery and buncombe.

8. Other examples of motor skill, such as constructive activities and gymnastics, may be taught according to such general principles as the following:

a. Give the pupils clear ideas of what to do by clear demonstrations and simple directions.

b. Indicate correct form, but do not overemphasize it.

c. Make corrections positive and specific.

Simple type of learning discussed in three sections.—Acquiring motor skill is one of the simplest types of learning. Thus, many feeble-minded children, who find the higher learning processes impossible, can become skilled in doing things with their hands. Furthermore, scientific studies have helped us considerably in understanding this simple type of learning. For these reasons the discussion of how to teach the motor arts, such as handwriting, construction, and dancing, is easily understood and, consequently, has been presented early in the text. The chapter has been divided into three sections:

I. Teaching handwriting (p. 14).
  A. Technique of teaching handwriting (p. 14).
  B. Laboratory experiments upon handwriting (p. 21).
  C. Scales to measure handwriting (p. 30).
II. General principles of teaching illustrated by the discussion of handwriting (p. 40).
III. Construction, gymnastics, and other forms of motor skill (p. 43).

Section I. Teaching Handwriting

A. *Technique of Teaching*

Examples. First lessons in large blackboard movements.—The first steps in the teaching of handwriting in a progressive elementary school may be illustrated by the following observations in a first grade.

Blackboard game with nursery rime.—It was the fourth day of school in the autumn. Reading lessons were being conducted with the nursery rime "Jack, jump over the candlestick."

The teacher introduced some blackboard practice with chalk by telling the children that she knew how to play a game by which they could all show Jack jumping over the candlestick. She showed them how to represent a candlestick on the blackboard with the chalk, as in Fig. 1, and then how to show Jack jumping back and forth by curved lines, as in Fig. 2. The children went to the board and each drew a candlestick. Then they practiced the rhythmic sweeps, back and forth, while reciting the rime in unison.

FIG. 1

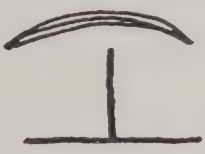


FIG. 2

FIG. 3

FIG. 4

FIG. 5

Rhythmic sweeps for "Jack and Jill."—The next day, when another rime (namely, "Jack and Jill") was being used, the teacher asked, "Who will show us at the blackboard the hill with Jack and Jill going up and tumbling down, somewhat as we showed Jack jumping over the candlestick?" The first child that volunteered to go to the board made a curve like Fig. 3. The next child probably had an idea of Jack and Jill as going up and down the same path, for she made a curve like Fig. 4. After some further trials they agreed on a form like Fig. 5,—up and down, up and down,—and all went to their places at the blackboard and practiced it rhythmically while saying in unison the complete rime about Jack and Jill.

Detailed directions; individual differences; imitation.—Some of the children succeeded easily in all phases of these activities, but others had much to learn. For example, some did not know their right or left hand. The teacher gave them careful directions about taking the chalk in the "right hand," drawing the

candlestick in the "middle" of the space, beginning at the "left," and then swinging in unison.

Some produced poor curves or had trouble in swinging to the rime. The teacher asked the pupils to watch one member of the class who did it very well. In the next trial the poor ones did much better.

Left-handedness given careful attention.—The teacher gave special attention to one left-handed boy. He tried to write with each hand. She had in mind the necessity of deciding whether to make a left-handed or right-handed writer of him, as the scientific studies of left-handedness indicate the need of care in making the decision in the case of each left-handed pupil.

Principles of teaching illustrated. *Motor control, rhythm, interest, individual differences, imitation.*—These examples illustrate for us the following points in the teaching of handwriting:

1. Learning to make handwriting movements is closely related to the child's general ability to make and control movements. As we shall see later, this ability matures and improves very greatly as the pupil grows older.

2. First-grade children have great difficulty in making small, finely controlled movements; hence the first lessons should consist of large movements at the blackboard.

3. Rhythm is a very helpful factor in aiding pupils to make smooth, nonjerky movements.

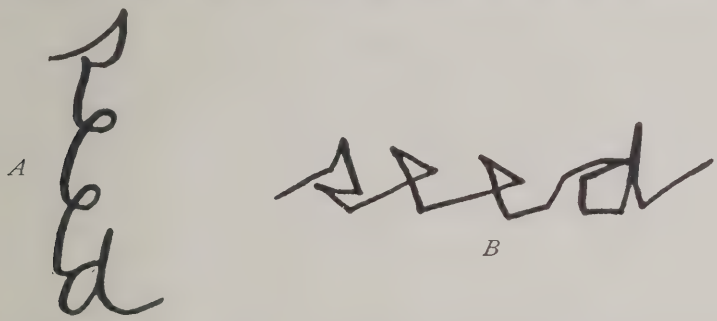
4. Nursery rimes provide not only simple, well-defined rhythms but also interesting games, which arouse and hold the pupil's interest.

5. Children vary greatly in their natural aptitudes for acquiring control of hand and arm movements.

6. Imitating another person's performance is one of the quickest and most helpful methods of acquiring motor skill; that is, skill in making movements.

Writing words and letters at blackboard. *Example of learning to write "seed."*—The initial steps in learning to write *words* and *letters* at the blackboard may be illustrated by the

following observation made in the same first grade during the sixth week of school. The children had made some progress in movement control by this time and had progressed sufficiently in reading and word study to be ready to write words. During a "word study" period the word "seed" occurred with three others in a phonetic drill. The children had learned the *general* form of the word in their reading and through a number of drill games, and the teacher introduced them to the more *detailed* knowledge of its written form in the following manner:



HOW TWO DIFFERENT CHILDREN WROTE THE WORD "SEED"

She said, "Now watch me carefully while I write 'seed.'" She then wrote it several times, while commenting on the ups and downs of the strokes. The children then all wrote the word in the air as they watched each stroke of the teacher at the blackboard. They were very attentive and interested. Finally, the teacher asked them to take a good look at the word and then to close their eyes and try to see it. This done, each child found his place at the board where his name had been written by the teacher, and tried to write "seed." Two thirds of the pupils were quite successful. Others, however, had great difficulties. One little girl in particular, whom I had noted before as one of the most successful in the reading, could hardly get started. She made the *s* all right, then hesitated for some time, and finally wrote as in *A*. The teacher, who had been giving the slow pupils much individual attention, tactfully said to this child, "That's very good; but let's try to write it from

left to right, like this," and wrote a model for the child which the latter copied with fair facility. Later, when the children all erased their work and ran to their seats, this child's lack of motor skill or motor ability again exhibited itself, as she took much longer to erase her writing and made many random, wasteful sweeps with the eraser.

Another naturally clumsy child, a boy whom I had noted for his awkwardness during a reading lesson, had clear ideas of the forms of the letters and produced a fairly legible word, but each stroke was made up of a series of jerks as in *B*.

Further principles. *Meaningful content, recalling forms, drawing-stage, encouragement.*—This observation adds to our general facts about beginning handwriting the following points:

1. The first real writing should consist of significant, familiar, easy words from the child's reading vocabulary.

2. Some children have great difficulty in recalling the correct form of the word or the letters.

3. Others have great difficulty in making letters smoothly, their writing consisting really of drawing each letter laboriously by means of a series of jerks.

4. Encouraging remarks with good models for imitation should be used to aid the unskillful pupils instead of using severe, discouraging criticism.

Delayed maturing of motor control delays fine formal drills.—The third point gives us the cue for much of the early practice in handwriting, for, before the children have matured or aged to the point where they can make their movements more smoothly, much of the fine formal handwriting drill is a waste of time.

Final example. *Arm-sweep drills on paper from ready-made handwriting system.*—We may illustrate the nature of some of the later training by two further examples, which are quoted from some lessons which Professor F. N. Freeman and his collaborator, Miss Mary L. Daugherty, devised for use in some experimental investigations of handwriting. In his description of the experiments Freeman says:

A manual of directions was prepared which gives exact instructions in regard to the conduct of the course. Position of body, hand, arm, pen, and paper are first considered. Precision in giving the order to write is emphasized, as definiteness and regularity help in acquiring the habit of rhythm. The size of writing for each grade is prescribed and illustrated by copies which are introduced in the text. In Grades I and II blackboard work is emphasized as desirable. An effort is made to have speed and quality progress together.

LESSON I, GRADES II–IV

A short talk something like the following will be a good way to begin the course. It should be suited to the class.

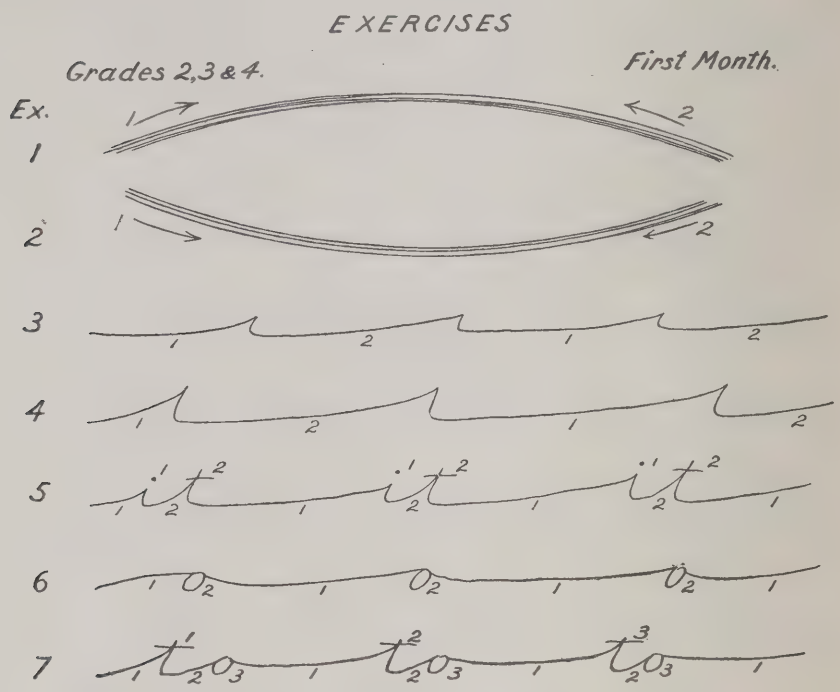
"We all want to learn to write well, so that when we write letters or stories our friends can read them. We can write well and make hard work of it, or we can write easily and well. I am going to try to show you how to write so that it will be easy, and then you will be glad to do it. First we must sit right. Sit straight, hips back in seat, feet on the floor." (See that all are doing so.) "Put paper in place at an angle of 30 degrees to the desk line. Put both arms on the desk and let them rest there easily. Make 'runners' of your two little fingers. Let them carry the whole hand, sliding back and forth on the paper (no pencil in hand). Go clear across the paper. Do it as I count: 1, 2; 1, 2; 1, 2; 1, 2. Again: 1, 2" (etc.). "Can you keep just with my count? Are you sliding on your runners? Is your wrist raised just a little so as to form a bridge? Now again: 1, 2" (etc., four times). "Take pencil; hold it so." (Show correct position; be sure index finger is on top of pencil, not on left side, and that thumb is higher on pencil—farther from the point—than the index finger. See that every child's position is correct the first time and every time. It will take less time after a while, and less on the whole, if insisted on the first time and every time. *Place* each pencil right, where it is necessary. Above all things, do not be impatient with the child who does not get the position right. They all want to.)

"Now can you use your runners with the pencil? Try, as I count —clear across the paper, but do not write yet. Ready. Slide— 1, 2" (etc.).

"Now I will show you something to write." (Say, as you make it on the board,

"To and fro sway the trees,
Bending in the passing breeze.")

"Now you may do it just as I did." (Repeat verses as they write.) (See Exercise 1, below.) "You may say it as you write. Again." (This is sufficient for the first exercise; if there is more time vary the exercise by letting part of the class do it at the board while the others do it at their seats.)



SAMPLE HANDWRITING EXERCISES FROM AN EXPERIMENTAL SYSTEM

To illustrate descriptions on pages 19–21

LESSON II

"Sit straight, hips back, feet on floor, arms on desk. Can you place your paper right? *Good.*" (Do not neglect commendation when possible to give it.) "Without pencils use your runners—clear across the paper. Ready. Slide—1, 2" (etc., four times). "Now take your pencils. Is your position like this?" (Be sure that it is.) "Now slide, but don't write. Ready. Slide—1, 2" (etc.). "Look." (On board write Exercise 1, saying the verse.) "You may write it. Ready. Write. 'To and fro'" (etc.). "Did you keep the time?

Once more: 'To and fro'" (etc.). "Did you keep the time? Once more: 'To and fro'" (etc.). "Now we have made the tree tops. Do you like to swing clear up to the tree tops among the leaves? Look, I am going to swing way up." (While making the curve of Exercise 2, say,

"How do you like to go up in a swing,
Up in the air so blue?")

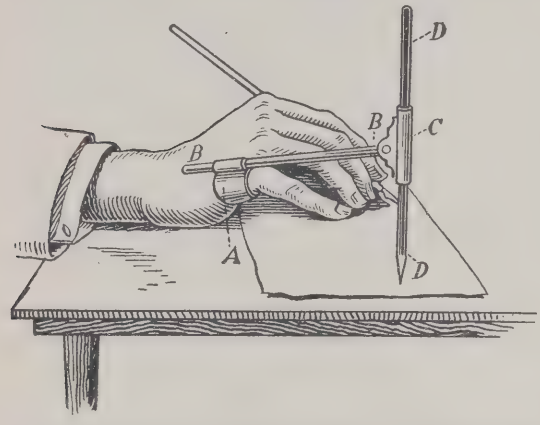
"Make the tree tops again. Are your runners ready? Is your pencil right? Are you holding it loosely?" (Test a few of the pupils by pulling it out from their fingers.) "Ready. Write. 'To and fro'" (etc.). "Now let's swing up to the tree tops. 'How do you like to go up in a swing?'" (etc.). (**2**: 133)

Teachers should use scientifically constructed ready-made systems.—It is from such directions as the above that most of the readers of this book will secure their best methods of teaching handwriting lessons, since the subject has been so highly organized in ready-made, commercialized handwriting systems, with their manuals of practice telling exactly how to conduct the various lessons. Such ready-made systems aid teachers enormously in easily teaching any subject efficiently and economically, provided the system is organized according to true scientific principles of teaching. Unfortunately the systems that are most widely used are sometimes most poorly and unscientifically conceived. This is notably true concerning certain recent handwriting systems that have wasted millions of hours of practice in an endeavor to get pupils to form the letters with an arm movement instead of making them largely in the most natural and economical way with the wonderfully flexible finger movements.

B. *Laboratory Experiments upon Handwriting*

1. **How handwriting movements are *made.*** *Experiments determine the part played by finger and arm movements.*—It seems so obvious that ordinary small letters one eighth of an inch high may well be made with finger movements, that it

appears absurd that educators should ever advocate exclusive arm movements for this purpose. Yet extensive scientific investigations were necessary to *prove* that in much skilled handwriting the letters are actually made predominantly with the fingers, while the arm movement is used largely to secure free, smooth progress across the page. We shall sketch briefly the history of these scientific laboratory studies of handwriting movements.



JUDD TRACER FOR ANALYZING HANDWRITING MOVEMENTS

The pencil *D*, *D* will omit the finger-movement element in the total handwriting movement

Judd-tracer experiments indicate the part performed by finger movements.— About 1900 Professor C. H. Judd devised the simple clamped-pencil arrangement shown in the picture on this page as a means of determining the part played by finger movements during handwriting. When this "Judd tracer" is clamped on the side of the hand of a person who is writing, it will trace the part of the movement contributed by the moving arm or hand but will not be affected by the finger movements. If the letters are written by arm movements instead of finger movements, the tracer should write the word the same as does the pencil held in the fingers. Judd summed up his conclusions, based on an analysis of many tracer records, as follows:

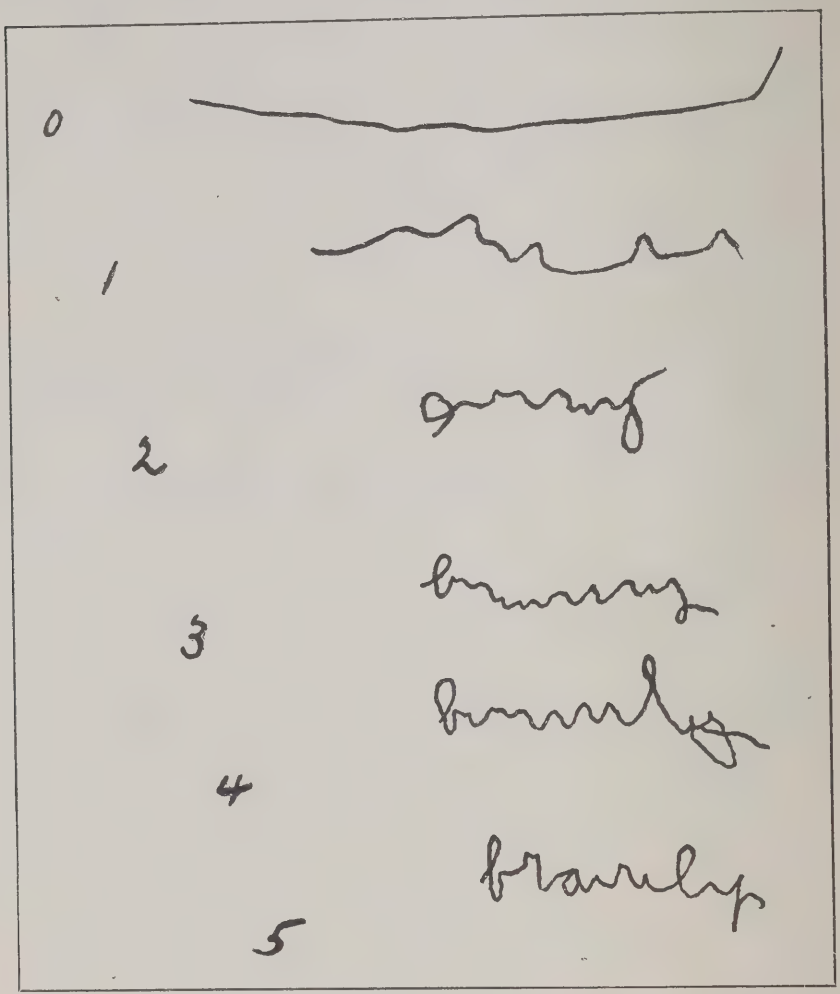
> In ordinary writing, the fine formative movements are executed by the fingers; the movements which carry the fingers forward are executed by the hand or arm; and the pauses between groups of letters are utilized for longer forward arm movements which bring the hand [again] into an easy working position. (**9**: 177)

Tracer and motion-picture experiments verify early suggestions.—Judd's early investigations with the tracer clearly suggested the fallacy of the arm-movement theory of making letters, and later investigations by some of his coworkers in The University of Chicago have served to prove the point. These investigations were carried on about 1917 under the direction of Professor F. N. Freeman and included (1) tests of many school children with a delicate, modified form of the Judd tracer, and (2) elaborate moving-picture photographs of the hand movements of many writers, from unskilled children to the most expert penmen.

Tracer shows that school children trained in arm movements use finger movements to make letters.—The tracer records showing the arm movements of school children were secured by one of Freeman's students, H. W. Nutt. In order to grade or score these records accurately the latter devised the scale shown on page 24. If a child wrote the word "bravely" entirely by arm movements, the tracer record should reproduce the word as shown in number 5 in the scale. On the other hand, if the letters were made entirely by finger movements the tracer record would be almost a straight line, as shown in number 0 in the scale. Similarly, number 4 indicates a considerable amount of arm movement in making the letters, while number 1 indicates a very small amount. Nutt secured his records from several school systems. In four of the schools one of the best-known systems of arm-movement writing had been in use for years, while in other schools other methods were used. Among the striking conclusions from his investigation are the following:

In the first place, the amount of arm movement which obtained in any of the systems, even in the later ages, is relatively small. Arm-movement grades 1 and 2 include the large majority of even the fourteen-year-old pupils, in spite of the fact that most of these pupils have been trained in the use of the arm movement directly. The employment of a considerable degree of arm movement, then, may be regarded as a highly skilled art. The same conclusion is to be drawn

from the marked correlation which is exhibited between arm movement and age. In ages 7 and 8 a considerable proportion of the children use no arm movement whatever, and practically none use the



NUTT'S SCALE FOR SCORING ARM-MOVEMENT RECORDS FROM THE JUDD TRACER

higher degrees. In the advanced ages (from 12 to 14) scarcely any write solely with the fingers, and a fair number use the higher degrees of arm movement. These facts do not give any encouragement to the view that the large majority of children can be trained in

exclusive arm-movement writing. They indicate, further, that if we do stress arm movement we should do so from the ages of 9 or 10 on.

That exclusive arm movement, or a considerable degree of arm movement, is not of first importance is indicated by the fact that the pupils who make high grades in quality do not use a large amount of arm movement more commonly than do poor writers. (2: 123)

Motion-picture records show that even expert penmen use finger movements in letter formation.—In the more elaborate motion-picture investigation Freeman photographed a writer's hand at work as shown in the film reproduced in the accompanying picture. After securing the pictures they were projected on the screen, where they could be studied and restudied and a variety of devices used to determine just what part finger movements and arm movements played in the writing. Fifty children and adults were photographed and their records carefully studied. The group included some expert penmen, some poor adult writers, some children who wrote well, and other children who wrote poorly. Some of the children had been trained in one of the well-known arm-movement systems, while others had been given only ordinary instruction or merely incidental training by their individual teachers. Concerning the movements used in producing letters, Freeman's conclusions from these elaborate photographic studies read as follows:

Courtesy of F. N. Freeman

MOTION-PICTURE FILM OF A BOY'S HAND ENGAGED IN WRITING

[1] The movements by which the letters are produced may be classified into those of the whole arm, of the hand as a whole, of the wrist joint, and of the fingers.

[2] None of the classes of writers who were examined wrote without finger movement and all classes used about the same percentage; that is, good writers used as much finger movement as poor writers, and those who had been trained in the use of the arm movement particularly used as much finger movement as did the pupils who had not been so trained.

[3] The writers who had been trained in the use of the arm movement used somewhat less *hand* movement and therefore more arm movement than did those who had not been so trained.

[4] The child cannot acquire the arm movement, even though it is made a direct object of drill, until he has acquired a certain amount of maturity and skill.

[5] A moderate degree of arm movement, however, will follow from [such experimental drills as were organized in the present study]. This drill did not have as its direct purpose the development of arm movement, and nothing was said about the movement of the arm in the course. The exercises which had for their purpose the development of freedom and fluency of movement, however, resulted in the acquirement of a certain degree of movement of the arm.

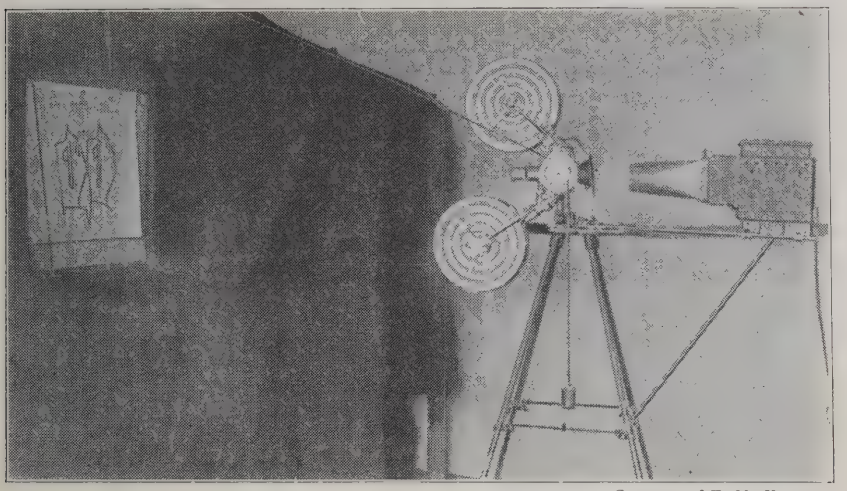
[6] Contrary to the prevailing opinion a close relation was not found to exist between the degree of arm movement and either the speed or the form of the writing.

[7] Such degree of arm movement as is profitable may readily be developed as a by-product of the type of training which has for its purpose the development of fluent and easy sideward movement of the hand across the page, and does not require the great emphasis which is put upon it by modern systems of penmanship. (**2**: 17)

2. **How handwriting movements are *learned.*** *Adult learners pay attention not to movement but to results.*—Another phase of Judd's early investigations of handwriting processes was an effort to find out how a person *learns* to write. As an initial study he suggested to ten school-teachers that they try to change the slant of their writing and report to him how they did it. Concerning these reports he says:

There is not a single case among the early records of the ten adults in which reference of any kind is made to any form of movement. All the devices mentioned [for improvement] emphasize the visual guides as the ones consciously employed. All found it possible to improve the slope of the letters by constant attention. (**9**: 184)

There was no distinct and clear recognition of the position aimed at, nor of the superiority of one kind of movement over any other.



Courtesy of F. N. Freeman

PROJECTING A MOTION-PICTURE FILM, ONE EXPOSURE AT A TIME, AND DRAWING SAME

Frequently in the drawings, one exposure was sketched on top of another in order to measure just how much each finger had moved in a fraction of a second

There was merely an effort to reach a certain end of production, and in order to reach this end the hand had to be in an easy position, and it was moved until brought into this easy position. . . . (**9**: 186)

The position of the hand was never clearly recognized in terms of its own movements. . . . Movements were not subjects of direct attention. . . . Writing, which is essentially a coördinated movement, has to be developed through trial after trial, with consciousness directed not upon the movement itself but on the visual images which appear as results of the movement. (**9**: 187)

Systematic description from all experiments.—In later years Judd and Freeman extended and elaborated these investigations in many ways, the most notable example being the motion-

picture study described above. Some of the outstanding conclusions from all such studies of how children and adults learn handwriting are the following:

1. *Diffuse movement.*—The child who is learning to write at a desk makes many useless, diffuse, and strained movements. He may grip the pencil too hard, pucker his lips, tie his legs in a knot, and make many false starts with his pencil.

2. *Try-try-again method.*—By trying time and again, some trials prove successful and others not. The useless movements gradually drop out, and the successful ones tend to be repeated and become habitual.

3. *Little thought to the movements.*—The child gives very little thought to the movements he is making. He lets these take care of themselves and concentrates his attention on producing satisfactory writing.

4. *Control improves with age.*—As the child grows older, fine control of movements becomes easier and easier. Premature drill is consequently a waste of time.

5. *Interested imitation of good models.*—After the age of ten most children can easily acquire sufficient skill in handwriting by merely following simple directions, practicing in imitation of good models, and being interested in improving until they attain certain standard scores which will be described later in the chapter.

6. *Details of technique summarized in yearbook.*—The detailed scientific conclusions concerning the teaching of handwriting are summarized by Freeman in twenty-eight rules printed in the Eighteenth Yearbook of the National Society for the Study of Education, Part II, 1919. (7.) Among these rules are the following:

Nine rules concern the *position of the pupil and the paper.* For example, he should face the desk squarely, with both forearms on it for three quarters of their length. The paper should be directly in front and tilted to the left until the lower edge makes an angle of 30 degrees with the edge of the desk, etc.

Four rules concern *movement*. For example, the latter should be a combination of the movement of the arms and the fingers. Particularly in the early grades it should be divided into a series of movements, separated by slight pauses.

Four rules concern the *influence of age*. For example, the speed of writing should be low at the beginning and should gradually increase from about thirty letters per minute at the end of Grade II to about seventy-three letters per minute at the end of Grade VIII. The first-grade child should write on the blackboard, or on unglazed paper with a pencil having soft lead. The use of pen and ink may be begun in the third grade. Insistence upon position or type of movement should first become strict about Grade IV.

Eleven rules concern *methods and devices*. For example, pupils should maintain a balance between attainments in form and in speed, so as not to develop one quality at the expense of the other. Drill exercises which require sweeping side-to-side movements develop fluency in the use of the arm in carrying the hand forward continuously while the letters are being formed. Counting is a useful temporary device to lead the pupils to organize the movements into units. (7: 11–19)

Review of Section I to this point. *A. Actual lessons. B. Experimentation.*—Up to this point in our discussion of handwriting we have considered the following material:

A. Descriptions of actual lessons which gave us some notions of the technique of teaching handwriting. These descriptions culminated on page 21 with a statement that most teachers would derive their technique from the teachers' manuals of commercialized handwriting systems. Our statement that these systems should be scientifically constructed led us to our second body of material; namely,

B. Descriptions of scientific laboratory experiments which have been conducted in order to ascertain (1) how handwriting movements are *made* and (2) how handwriting is *learned* most economically and effectively.

We shall now turn to a third phase of the discussion; namely, the development of scales for measuring the handwriting achievements of pupils and classes.

C. *Scales to measure Handwriting*

Simple subject matter made invention easy.—Because of the simplicity and very restricted nature of the subject matter of handwriting, it was the first subject in which great and satisfactory progress was made in devising scales to measure and grade it. Probably most readers of this book are familiar with the well-known Ayres Handwriting Scale, portions of which are reproduced on page 32. By using such a scale it is possible to make our aims in teaching handwriting much more definite than they were before the scales were invented.

Scale used to define social needs in handwriting. *Only moderate skill (60 to 70 on the Ayres scale) needed.*—For example, through the use of such scales we now know that if an eighth-grade pupil can write as well as sample 60, shown on page 32, and with fair speed, he has attained a standard that is satisfactory for most practical social purposes and he need not be given further drill in handwriting. This definite social aim or standard of attainment in handwriting was ascertained about 1917 by L. V. Koos, who graded, by means of the Ayres scale, specimens of writing from some 2000 adults in various walks of life. He also had 826 persons indicate the grade of writing which they considered "adequate" for general social purposes. His conclusions from all these data are summarized in the following quotation:

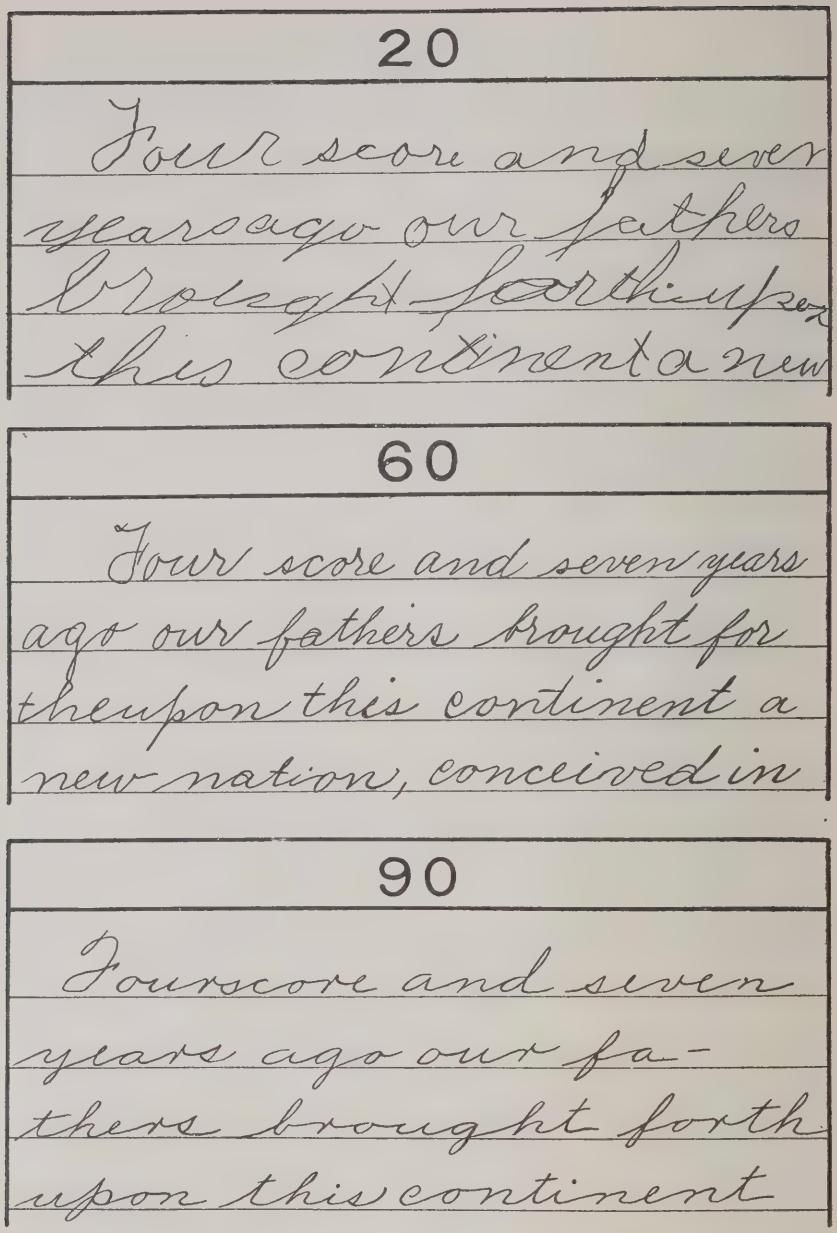
> From the facts that have been presented touching the ability in handwriting of persons engaged in various occupations, it seems to the writer that the *quality 60* on the Ayres Measuring Scale for Adult Handwriting, which we have set up as the ultimate standard of attainment for all school children for *purely social purposes*, is adequate for the needs of most vocations. This will apply to labor, skilled and unskilled, as well as to the professions, exclusive of teaching in the elementary schools. For that large group who will go into *commercial work*, for telegraphers, and for teachers in the elementary schools it will be necessary to insist upon the attainment of a somewhat higher quality, but *hardly in excess of the quality 70*. The

fact that some will go into pursuits demanding a quality better than 60 should not be offered as a justification for requiring all pupils to attain that better quality. Such a requirement would entail the waste of a vast amount of time on the part of both teachers and pupils. Who shall be taught this better quality is a problem of educational and vocational guidance. Since all should be required to learn to write as well as 60 on the scale for the purely social uses, to train pupils to write this quality is the task of *general* education; to teach some who are going into commercial or other vocations requiring a higher quality of handwriting to write this better quality is the task not of general but of *vocational* education. Many high-school commercial departments have long since recognized this distinction by giving special training in handwriting to those enrolled in their work. (7: 441)

No longer necessary to strive for perfect handwriting.—Thus the handwriting scales, by enabling us to define precisely the standard of handwriting which we should endeavor to attain in each elementary-school graduate, justify us in discarding the old custom of merely practicing and practicing in the vain hope of attaining perfect handwriting as represented in the samples in the copy book.

Scales permit definite standards for each grade. *Teacher can easily judge her teaching.*—Furthermore, the handwriting scales simplify our task of teaching by telling us what standard ought to be attained by each grade in an elementary school. For example, on the bottom of the Ayres scale (Gettysburg edition of 1917) we find such information as the following: In American elementary schools the second-grade pupils average quality 38 on this scale; fifth-grade pupils average 50; seventh-grade pupils average 58. (The complete information is shown in the graph on page 34.) The rise of the curve represents the steady improvement through the grades of American elementary schools in the average quality of the handwriting.

To ascertain the precise quality which any grade should attain, according to these standards, a teacher should first locate the Roman numeral which indicates that grade on the



PORTIONS OF THE AYRES HANDWRITING SCALE

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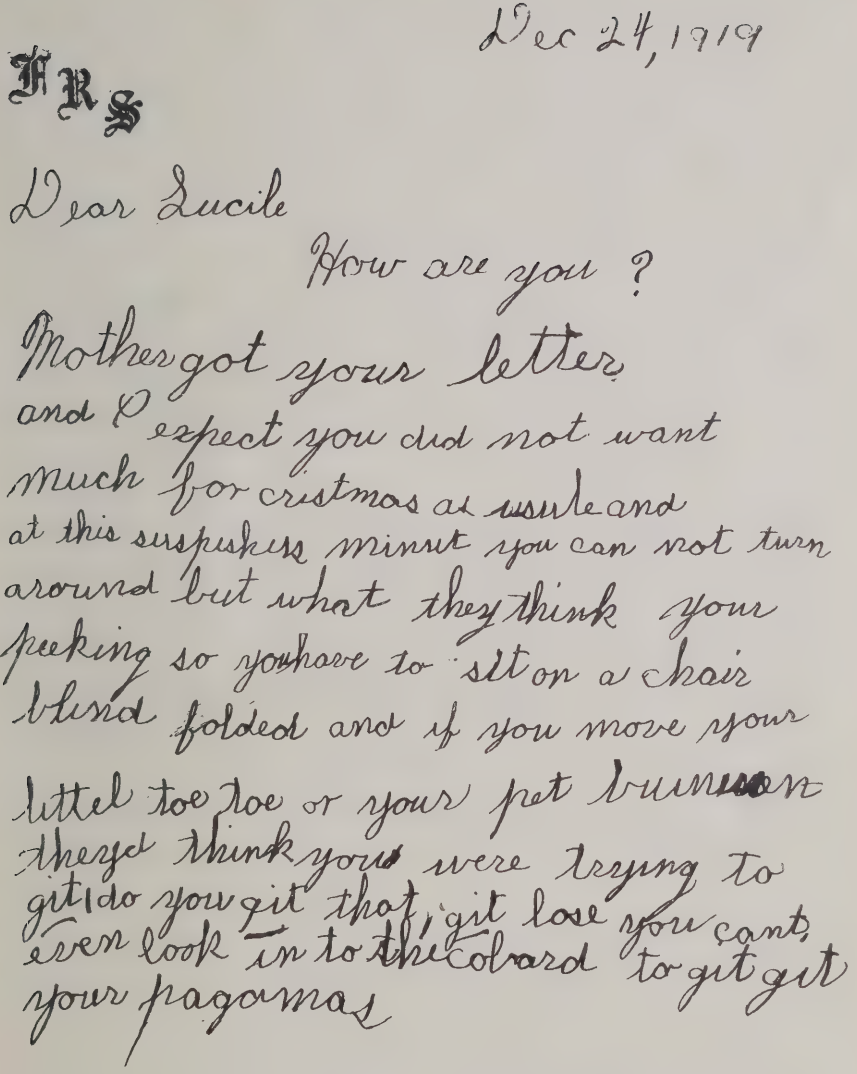
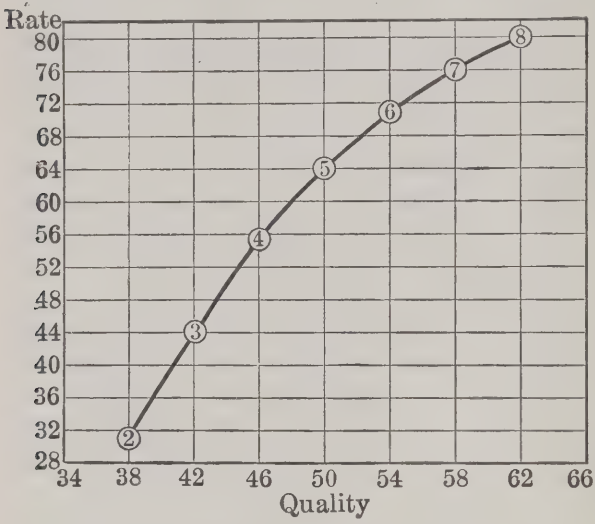

Dec 24, 1919
F R S
Dear Lucile
How are you ?
Mother got your letter
and I expect you did not want
much for cristmas as usuale and
at this susphskss minut you can not turn
around but what they think your
-peeking so you have to sit on a chair
blind folded and if you move your
littel toe foe or your pet bunnon
therjd think you were trying to
git do you git that, git lose you cant
even look in to the edvard to git git
your pagamas

HUMOROUS EXAMPLE OF A CHILD'S HANDWRITING

'Twas the night before Christmas when nine-year-old Betty penned the above missive to her friend Lucile. What score would you give Betty in handwriting, judging by the portions of the Ayres scale given on the opposite page? What score would you give her in sense of humor?

curved line and then drop vertically to the base line and read the standard found there. For example, a fourth-grade teacher would find quality 46 thus indicated. If the handwriting of the pupils in her grade did not equal this standard she should take appropriate steps to improve it. On the other hand, if her pupils did average up to the standard she could feel that her teaching of handwriting was progressing successfully.



GRADE STANDARDS FOR PUPILS' HANDWRITING

Ascertained from many school systems by grading thousands of papers with the Ayres scale. The rate is in letters per minute

Speed standards should supplement quality standards. — Besides the average *quality* of handwriting desirable in each grade, another feature is also indicated in the graph which we have been studying; namely, the speed. The graph shows that in the third grade the children average 44 letters per minute; in the fifth grade, 64 letters per minute; etc. These figures are ascertained from the graph by locating on the curved line the Roman numeral designating the grade and then moving horizontally to the left to the vertical axis, where the speed standards are printed.

Discovering grade standards. *By widespread testing of achievements of American schools.*—Standard scores similar to those which we find represented thus conveniently on the Ayres scale were determined by Freeman, about 1915, in connection with the work of a national committee which was investigating

methods of economizing time in elementary schools. Their program for the above year consisted in determining the minimum essentials which pupils should learn in the fundamental subjects in the elementary schools. Freeman had charge of the investigations in handwriting. He determined the standards to be attained by the various grades in the elementary school by giving handwriting tests in the grades of 56 representative school systems of the country. The papers of the 34,000 children who were tested were scored for quality and speed by competent judges. From these scores were determined the averages or medians which should be attained by any elementary school that is ambitious to equal the average performance in American cities.

Attaining the standards. *Often handwriting teaching actually meets social needs.*—It will be noted that the quality standard for the eighth grade as shown on the graph on page 34 is 62 on the Ayres scale. This equals the business or social standard described on pages 30–31. Hence we may conclude that American elementary schools on the average are attaining as good results in handwriting as are needed in social life. This is one of the few subjects in which this is the case—in most subjects the teaching must be very greatly expanded and improved in order to attain the social perfection which is desirable, as we shall see in later chapters.

Some cities fail in teaching handwriting and other tool subjects. The Gary example.—Moreover, even in the case of handwriting, many American schools rank below the average standards which Freeman ascertained. A very notable case of this sort was found in the survey of the schools of Gary, Indiana.

The Gary schools had been advertised very widely throughout the country in connection with a number of radical innovations whch they instituted. These included changes in the types of buildings used and in the daily program and other matters. The general impression of educators who visited the schools was that while these changes might be desirable in themselves, the

teaching was very poorly organized and supervised. This opinion remained, however, a matter of merely personal impression until the General Education Board, upon invitation of the Gary authorities, conducted a survey of the schools, and published the report in 1919. The achievements of the pupils in handwriting, spelling, arithmetic, composition, and reading were tested by S. A. Courtis, a well-known expert investigator.

In some of these subjects the objective tests showed great inferiority in the Gary teaching, as summarized by Courtis in the following words:

> The general conclusion of the author is that the product of classroom teaching of the fundamentals is at Gary poor in quality and inadequate in amount; it approximates in character the product of the poorer conventional schools and reveals in no particular the slightest indication that it has been affected either favorably or unfavorably by the enriched curriculum or other special features of the Gary schools. The progress from grade to grade is relatively small, the final levels of achievement reached are comparatively low. . . . The entire investigation reveals many and consistent evidences of careless work, imperfectly developed habits, and marked lack of achievement. (**8**: 384)

It is interesting to note that the Gary authorities, as a result of this impartial study of their school system, introduced more careful supervision and testing as a means of remedying the deficiencies.

Material rewards and overloaded supervision hardly necessary.—On the other hand, in view of the fact that satisfactory social standards in handwriting are easily attained by many school systems, with only a moderate amount of stimulus and supervision, it seems entirely unnecessary to bestow upon such a simple subject the large amount of effort that is described in the following quotation from a report of one of our large American cities:

> The material incentives to good work [in handwriting] that have been held out to the pupils for some time have been changed. . . .

A button especially designed, showing the seal of the city, is now presented to all pupils who have had 25 practice drills accepted. Likewise a special pin displaying in colors the seal of the city is given to pupils having 100 drills accepted. The crown of the movement is a penmanship certificate, a well-executed lithograph containing also the city seal. This certificate is awarded to pupils who have had accepted 172 drills.

A district director of penmanship has been appointed in each district who has, under his principal, complete supervision over the subject in his entire district. He accepts or rejects the drills from the individual pupils. . . . He arranges for the transportation of drill papers, for the distribution and record of buttons, pins, and certificates.

If the time, effort, and money spent in this elaborate scheme were devoted to improving the teaching of some more difficult activity, such as skillful silent reading or problem-solving or the exercise of civic-moral virtues, it is likely that the social results would be very much more valuable that those which accrue from devoting such energies to unnecessary improvements in handwriting—a subject so easy to learn that even feeble-minded persons can learn it, and almost any routine drillmaster can teach it satisfactorily.

Handwriting is easy to teach, but neglect brings failure.—In general the scientific surveys of handwriting teach us that while it is a comparatively simple matter for a well-conducted elementary school to attain the degree of handwriting skill that is desirable, if a school or a teacher fails to provide the amount and kind of training that is needed, the pupils will fall far below the standards. On the other hand, the surveys show that satisfactory results may be obtained with a very moderate amount of time and effort.

Small amount of time (fifteen minutes a day) sufficient if well spent.—This, then, raises the question of the amount of time which should be devoted to handwriting. Freeman easily reached a conclusion on this question by comparing the efficiency or excellence of the attainments of various schools with

the amount of time which they devoted to the subject. It quickly became apparent that an excessive amount of time was not needed because some of the schools that spent a large amount of time did not attain any better results than those which spent a much smaller amount. From all the data Freeman concluded that from ten to fifteen minutes a day is sufficient to attain satisfactory standards with the greatest economy of time and effort.

Tests of handwriting essential. *How to conduct them.*— In all the investigations described above, a handwriting *test* is essential. The following directions are given by Freeman for conducting such a test:

1. Give the pupils some preliminary practice in writing the words which they will write in the test, so that they can write them freely from memory. In the second and third grades use some suitable rime, as

> The rain is raining all around,
> It falls on field and tree,
> It rains on the umbrellas here
> And on the ships at sea.

In the fourth to the eighth grades use the *names* of the numerals (not the figures),—*one*, *two*, *three*, etc.,—practicing up to *thirty*.

2. Be provided with a stop watch or a watch with a second hand.

3. See that the pupils are ready with pen and ink (or pencil in the grades in which pens have not been used) and paper.

4. Instruct the pupils substantially as follows:

"We are to have a test (or game) to see how well you can write. To write well means to write rapidly and also to make it look well. We are going to write what we have been practicing" (make sure the pupils know what this is). "You will start when I say 'Begin' and stop when I say 'Stop.' Be sure to keep writing all the time till I say 'Stop.'" (If this is the first test give a trial or two in starting and stopping on other paper than that which is prepared for the test.) "Remember to write well and rapidly and to keep on writing until I say 'Stop.'"

5. See that everybody is ready, start the watch or wait till the second hand is at zero, and say "Begin."

6. Keep watch of the pupils and start going again any that may stop.

7. Note the watch carefully and say "Stop" exactly at the end of *two minutes.*

8. Glance about and stop any pupils that may continue. (**7**: 22–23)

Scoring papers is simple, but requires practice.—After the pupils have handed in their papers in such a test, there comes the task of scoring them for speed and quality. Scoring for speed is very easy because it involves merely counting the number of letters written per minute. Scoring for quality on the Ayres scale, however, requires more training on the part of the scorer in order to secure reliable comparisons, just as in the case of using any other measurement instrument. The process in the case of handwriting is simple, but practice in it is needed.

Pupils interested in using the scale to judge their improvement.—Finally, we may note that each pupil may be trained to compare his own handwriting with the handwriting scale and become interested in mounting higher and higher on it. The pupils will need guidance in comparing their samples with the scale. Some, especially, will need to overcome the tendency to mark their own papers too high. The competitive element will interest and stimulate some, while others will be encouraged by the obvious success in finding themselves mounting on the scale.

Conclusion of specific discussion of handwriting.—This will conclude our discussion of the teaching of handwriting as one of the most important kinds of motor skill acquired in the grades. In our discussion we described (*A*) actual examples of the technique of conducting handwriting lessons, (*B*) laboratory investigations of how skilled handwriting is performed and learned and the corresponding conclusions concerning teaching it, and (*C*) the use of handwriting scales to determine the standards of excellence which are desired in business and in each grade in the elementary school and to measure the success of any pupil or teacher or system in handwriting.

In order to extend the lessons which we have learned from our study of handwriting, we may profitably turn for a moment to certain general principles of teaching which it suggests.

Section II. General Principles of Teaching illustrated by the Discussion of Handwriting

1. **Precisely defined social needs give definite aims.**—The first general principle of teaching which is clearly illustrated by our handwriting discussions is that we can clarify our aims in teaching by a careful study of social needs. The fact that we know that quality 60 on the Ayres scale is all that is needed for general social purposes enables us to define our school aims with equal definiteness. In our later chapters we shall endeavor to secure such social standards for each type of learning, but we shall seldom be able to define them as clearly as in the case of handwriting.

2. **Pupil maturity determines grading of exercises and emphasis.**—Our knowledge of the way in which pupils improve with age in their ability to make and control fine movements enables us to decide what types of materials, movements, and rhythms to use at each age in teaching handwriting. Again, our knowledge in this regard is probably more specific in the case of handwriting than in any other type of learning, but in later chapters we shall give attention to the problem of maturing in the various types of learning as a factor in determining the grading of activities.

3. **Research determines educational truths.**—The scientific studies of handwriting which were described in this chapter typify recent efforts to determine the true answers to educational problems by scientific research. Notable centers of such research which have been concerned with matters discussed in this chapter are Columbia University, The University of Chicago, the Russell Sage Foundation, and the General Education Board. For many years the Sage Foundation employed Dr. Leonard Ayres, who devised the Ayres scale. The General Education Board financed the survey of the Gary schools and the laboratory studies of handwriting by means of motion pictures, which we described in this chapter.

4. **Results of research destroy pedagogical quackery.**—The results of such researches enable us to refute the fallacious claims of educational quacks and charlatans who sometimes dominate the country with false methods of teaching through cleverly commercialized systems of teaching or organized propaganda. The obviously absurd training in forming letters without finger movements is perhaps our most striking example of such a false practice. It is very likely that in the more complex types of learning, to be described in later chapters, equally absurd practices have prevailed.

5. **Experimental research isolates elements, controls conditions, and measures results.**—The use of the Judd tracer to *isolate* the arm-movement element in handwriting from the total complex movement is a good example of an easy scientific experiment. The movements of finger, hand, and arm in writing are so complexly coördinated that it is difficult to tell from ordinary observation just what the arm contributes. The tracer record enables us to examine this element by itself. The motion-picture records illustrate the better *control* that experimentation creates. Not only were the writers photographed under definitely standardized conditions but the resulting photographs could be projected, manipulated, reprojected, and controlled in a great variety of ways which are not possible with ordinary observations. Finally, *exact measurements* were used in studying the records; for example, the number of pauses made by a smooth, fluent writer were compared with those made by a poor, jerky writer, and certain conclusions were drawn concerning rhythm in good writing. A prominent American leader in such *experimental* studies of learning in several school subjects—notably handwriting and reading—is Professor C. H. Judd, whose pioneer work on handwriting has been described above.

6. **Special scales needed and invented to measure results in school subjects.**—The invention of special scales to measure the results of teaching in handwriting, reading, and other subjects was a necessary step in enabling educators to test the

efficiency of teaching. Professor E. L. Thorndike of Columbia University has been the leader in such scale-making. He published the first American scientific handwriting scale in 1910 and has stimulated the development of many scales by other investigators. His handwriting scale has been largely superseded by the Ayres scale (Gettysburg edition) because of the convenient, simple form of the latter. To secure the exact values, such as 20, 30, 40, etc., assigned to the several specimens in such a scale involves elaborate mathematical treatment by the scale-maker.

7. **Scientific investigations are mathematically precise, objective, verifiable, expert, and impartial.**—The preceding points enable us to formulate a description of scientific investigations in education which may guide us in judging of the validity of opinions and evidence relative to educational problems. The characteristics of such scientific investigations which appear from this chapter are the following:

a. They are *mathematically precise*; for example, the handwriting records in the Gary survey were compared in the exact terms of the Ayres scale with results from other American schools.

b. They are *objective*; for example, the tracer records and the motion pictures can be examined as objects by anybody.

c. They are *verifiable*; for example, anybody can give the handwriting test exactly as described on page 38 in any school that is under investigation, to see whether he gets the same results as any other investigator.

d. They are organized by *experts*; for example, Judd and Freeman have spent years in studying and perfecting the technique of laboratory experimentation, and Thorndike, Ayres, and Courtis have spent years in devising and using scales for measuring educational products.

e. Finally, they are *impartial*; for example, neither Judd nor Freeman was biased by an interest in selling a certain handwriting system. As investigators they were impartially concerned merely to ascertain the truth.

Transition to other forms of motor skill.—When we have the results of scientific investigations that possess the above characteristics we can feel reasonably sure of the validity and value of the methods of teaching that have been tested by these investigations and proved worthy. In the case of handwriting we have made great progress in *proving* the value of certain methods. We shall now turn to a brief discussion of other forms of motor skill—forms in which our *scientific* knowledge of the best methods to use is very meager.

Section III. Construction, Gymnastics, and Other Forms of Motor Skill

Examples. *What points of technique did your teachers exhibit?*—Among the other forms of motor skill which children learn in school are paper-folding and paper-cutting, modeling in clay and plasticene, weaving and knitting, running and jumping, kicking, tossing, and catching balls, skipping and dancing. In thinking about the best methods to use in teaching a pupil to be skillful in any one of these arts, the reader might recall her own efforts to acquire some motor skill, such as knitting or dancing, under the direction of some teacher. My own comments on the methods of such teaching are largely the outgrowth of careful observation of teachers who were instructing me as an adult in dancing or swimming or playing golf or in learning gymnastic feats. I have also made some observations of teachers of motor skills in school.

Contrast between two baseball coaches.—For example, I watched for some time two men who were instructing seventh-grade boys in baseball. One man, a rather unskilled teacher, merely divided his class into two teams, appointing as captains two skillful players. These captains chose their players and assigned them to places, reserving to themselves the pitcher's place. In this position they pitched fast curved balls. Consequently many of the pupils, who lived in a city-apartment

region and had seldom played hard ball before, merely struck out. I watched the teams all spring, and it was the same story day after day. The unskilled pupils, who should have had easy pitching and might have grown in skill from day to day, spent the spring striking out. Moreover, when in the field they were assigned positions in which they had little chance to perform, while the pupils who were already skilled played the more active positions. All the teacher did was to act as umpire and disciplinarian. He did no real teaching.

Courtesy of The University of Chicago Elementary School

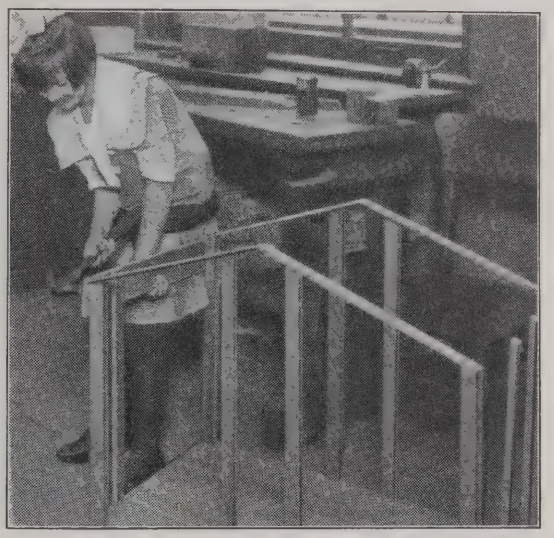
INFORMAL KINDERGARTEN CONSTRUCTIONS IN A SAND-PAN

Such informal activity with *large* materials has replaced the use of highly formalized fine movements with very *small* materials

In sharpest contrast was the work of the other teacher. In the first place, he frequently did the pitching himself, thus speeding up the game and providing much more practice within the half-hour gymnasium period. To each batter he pitched balls of appropriate difficulty. To the novices he made encouraging and specific suggestions, such as "Stand up to the ball; I'm not going to hit you," or "Hold your bat as I told you to." Similarly, specific suggestions were made to the catcher, the base-runners, and all the other players. Thus, most of the players were kept alert and attentive to their specific needs for improvement. Furthermore, instead of allowing those who were already skilled to monopolize the game, the teacher gave all the pupils chances

to occupy positions in which they should have frequent occasions for fielding, throwing, catching, etc.

Few conclusive laboratory experiments.—Of the many laboratory experiments that have been conducted upon motor skill few have reached reliable conclusions concerning the best methods of teaching, because the learners have commonly been allowed to learn without definite instruction; that is, merely through trial and accidental success. Since the experiments upon learning handwriting which we described above are among the most elaborate and reliable of all the experiments upon motor skills, we shall allow them to typify for us the general possibilities of such experimentation and turn to certain general rules for teaching.



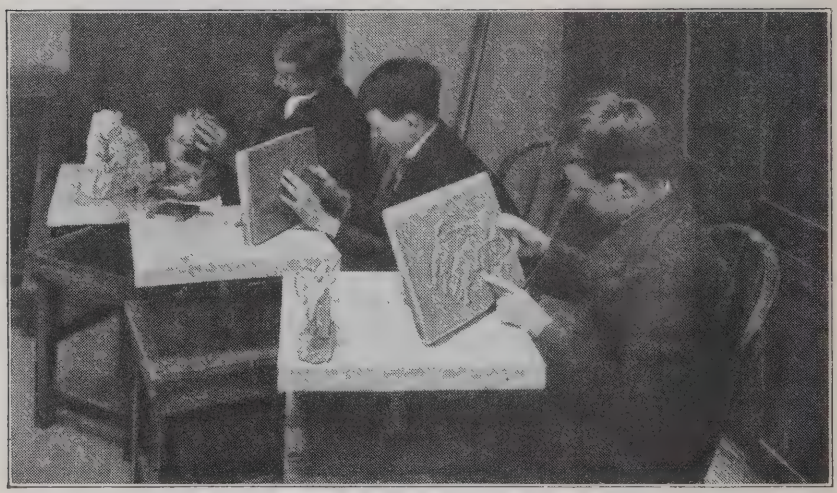
Courtesy of The University of Chicago Elementary School

CAN A GIRL DRIVE A NAIL?

Opinions concerning best methods to use.—From such observations and experiments as we have noted above we may derive the following general opinions concerning the best methods to use in teaching motor skills:

1. **Give a clear notion of what to do.**—The teacher should take care to give every pupil a clear notion of what he is to do; for example, in demonstrating an act she should stand so that all the pupils can see clearly. I observed the following violation of this rule. A teacher demonstrated to a third-grade class a complicated piece of paper-folding and then asked the class to try. Only a few succeeded. She called on a skillful girl

whose seat was in the middle of the room to stand up and show the other pupils how to do it. The girl stood at her seat and performed the act in such a position that the pupils in the back of the room could not see. Later the teacher rebuked one of these pupils—an unskilled but conscientious boy—because he was looking around to see how his neighbors were doing the folding. Thus, she was rebuking him for doing the very thing which she had wanted him to do when the girl demonstrated—that is,



Courtesy of The University of Chicago Elementary School

BOYS MODELING IN CLAY

Such constructive activity frequently produces pleasing artistic products, which the pupils proudly enjoy at the time and in later life

watch another pupil—but which he had been unable to do then because the teacher had failed to have the demonstrator stand where the whole class could see.

2. **Imitation usually the best method of acquiring the idea of what to do.**—The demonstration of paper-folding described in the preceding paragraph is an example of the use of *imitation* to convey the idea of what to do. Examples from handwriting were given on page 16. Such opportunities for imitation are usually essential. Few people can learn how to do a complex act merely from written or spoken directions. Hence it is de-

sirable that the teacher be a skilled performer. In order to facilitate imitation it is important in many cases for the demonstrator to *face in the same direction as the learners*; for example, in marching or dancing or performing gymnastic exercises. If the class is small the best position is sometimes at the side or diagonally in front of the class. If the instructor does face the learners it is often helpful for him to reverse his own movements; that is, to perform to his left, while the pupils perform to their right, etc.

3. **Simple directions often helpful and necessary.**—Where the action can be easily and definitely described simple directions often aid imitation; for example, in learning to dance, to tell the pupils to do certain things to each count, such as "Bring the feet together on 'three.'" There is, however, great danger of overelaborating such directions, as evidenced in some of the old-fashioned handwriting systems, which gave lengthy descriptions of each letter, or in some vocal systems which describe the whole anatomy and operation of the vocal organs in an effort to train students to sing or speak correctly.

4. **Give *positive* directions and corrections.**—Say to a pupil who is having difficulty, "Do it this way," with appropriate demonstration or directions. To say "Why did you do it that way?" or "Don't do it this way" often tends to focus his mind more intently on the wrong method. Instead, the suggestions should tend to fix the correct method more clearly in his mind.

5. **Indicate correct form but do not overemphasize it.**—In any art, such as singing, baseball, golf, or skating, the professional experts tend to use certain standard positions, movements, and methods. These standard forms are known as *good form*. At the same time, the experts in any given art, while resembling each other in their general methods, may as individuals deviate in many ways from the standard form. Hence, in teaching any art the instructor should demonstrate standard methods to the pupils, but at the same time permit

considerable individual variation in positions and movements, always remembering that what the pupils and society are most interested in is a satisfactory product or result—not some particular form or method.

6. **Encourage the pupils, especially the unskillful.**—The helpful influence of hopefulness and of the joy of success in facilitating learning is emphasized by many scientific investigators of learning-processes. To create an encouraged frame of mind in each pupil we offer the following suggestions:

Courtesy of The University of Chicago Elementary School

BOY DEMONSTRATING THE USE OF A POTTER'S WHEEL

Practice in the potter's art introduces the pupil to one of the world's oldest and most important industries, and prepares him for the refined enjoyment of many beautiful products of American and foreign pottery

a. Maintain a general atmosphere of encouragement. This general recommendation was charmingly phrased by the great John Locke, in 1693, in the following suggestions for correcting pupils:

> Keep them to the Practice of what you would have grow into a Habit with them, by kind Words, and gentle Admonitions, rather as minding them of what they forget, than by harsh Rebukes and Chiding, as if they were wilfully guilty.

b. Help the slow pupils to realize that they will improve with practice; to realize that the try-try-again method does bring results. Experiments in psychological laboratories bring out the fact that although it is difficult to equal the performances of the expert, talented specialists in any motor art, many learners who

are sufficiently mature will improve very rapidly in their early periods of practice of certain motor arts such as typewriting.

c. Give specific suggestions for improvements—not merely vague, general ones. Here, again, our simplest examples are from handwriting. For example, a pupil's handwriting may be poor in any one of the following characteristics: letter formation, spacing, quality of the stroke, uniformity of slant, uniformity of alignment. The teacher should be skilled in diagnosing each pupil's special needs and in making appropriate suggestions.

d. Make few suggestions at a time. Again we may quote Locke, who said:

> Another Thing you are to take Care of, is, not to endeavor to settle too many *Habits* at once, lest by Variety you confound them, and so perfect none. When constant Custom has made any one Thing easy and natural to 'em and they practice it without Reflection, you may then go on to another.

Conclusion of discussion of motor skills.—These general rules for organizing practice will conclude our discussion of motor learning. In school and adult life such learning is very frequent. Where instruction is commercially profitable, as in handwriting or vocal and piano teaching, instructors vie with each other in advocating the peculiar excellences of their systems. Frequently these claims are pure quackery, the asserted virtues being in reality great defects. Only by carefully controlled scientific studies can we find the best methods. Fortunately, in the case of handwriting—the most important motor art taught in elementary schools—we have numerous scientific investigations upon which to base our methods. We have described these investigations at length, not only in order to throw light on the teaching of handwriting but also in order to give the reader a notion of the nature of scientific methods of investigating educational questions. In the next chapter we shall turn to another relatively simple type of learning—namely, learning to spell—in which also we have a number of reliable investigations to guide us in our choice of methods of teaching.

BIBLIOGRAPHICAL NOTES ON HANDWRITING AND OTHER MOTOR SKILLS

The references marked with an asterisk are especially recommended for beginners. Only a few of the more important references from a voluminous literature of the subject are given here.

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CHAPTER IV

LEARNING TO SPELL FOUR THOUSAND WORDS

Main points of the chapter.—1. The task of teaching spelling has been greatly simplified by discovering the words actually used by children in school-writing and by adults in business and social correspondence.

2. There are only about four thousand such words in common use.

3. Excellent textbooks now contain only these words, in annual, weekly, and daily lists, and arrange them on the basis of scientific investigations of their use by children in the various grades and their relative difficulty.

4. The more difficult words appear for review several times at psychological intervals.

5. The actual conduct of spelling lessons is probably best organized in units of a week's work consisting of about thirty or forty words—some new and some review.

6. These words are first given in a written test which ascertains the particular difficulties and determines where emphasis needs to be placed.

7. The correct spelling is then *taught* by methods which emphasize careful, correct pronunciation, syllabication, and immediately corrected mental recall.

8. This teaching is followed by snappy, interesting drills in which concentrated attention is secured through the spirit of competitive games.

9. Follow-up tests are given to ascertain what weak points remain and how effective the instruction has been.

Five short sections.—The story of how to teach spelling can be easily told in five brief installments, as follows:

I. What words to teach (p. 53).
II. How to arrange the selected words (p. 54).
III. How to conduct spelling lessons (p. 57).

IV. How to measure the results of spelling instruction (p. 66).
V. The *science* and the *art* of teaching (p. 69).

As in the case of handwriting, we shall find a number of scientific investigations to guide us in dealing with most of these issues.

Section I. What Words to Teach

Teach the words that children will need to spell and no others.—Not long ago it was customary to make up the spelling lists regardless of the pupil's need for the words in ordinary writing. On this basis, as late as 1915 one of the most popular spellers contained 8000 words. A number of investigations conducted about 1914 showed, on the other hand, that in ordinary life pupils will use a very much smaller number—let us say about 4000. Obviously great economy is effected in teaching by eliminating the uncommon words and teaching only those that pupils will need to spell.

Common words determined from pupils' themes and social correspondence.—The common words which pupils are likely to use in their writing were determined by tabulating the contents of many pupils' themes and of business letters and family correspondence. The following examples are typical of such investigations.

The words used in the composition themes of elementary-school pupils were reported by Professor W. F. Jones in 1914. He found only 4532 different words used in 75,000 themes written by 1050 elementary-school pupils in Illinois, Maryland, Iowa, and South Dakota upon a wide range of topics. From 56 to 105 written themes were secured from each pupil.

The words used in 2000 short letters from business and professional life were tabulated by Dr. Leonard Ayres, and 2001 different words were found.

As a third source of common words the extensive family correspondence of thirteen adults was studied by Cook and O'Shea and found to contain 5200 different words.

A list of the 1000 most commonly used English words was secured by Ayres by combining the results of a number of such investigations as those described above.

Several other investigators have extended and refined the information secured in these pioneer studies. One of the most authoritative investigations, entitled "The Determination of a Spelling Vocabulary based upon Written Correspondence," was conducted by W. N. Anderson, at the University of Iowa, in 1917. Anderson's list includes 2977 words from the written correspondence of Iowa people.

Recent texts and city spelling lists contain from 2000 to 4000 words.—With such information in hand it is a relatively simple matter for a school superintendent or a writer of a spelling book to determine what words to include in his list. In examining such lists of recent issue one generally finds them prefaced with the statement that all the 1000 common words from the Ayres list are included, plus the more frequently occurring words from the other lists. As a rule, the words which occurred only a very few times in the investigations are omitted, so that an up-to-date spelling list will contain from 2000 to 4000 common words of everyday life for pupils to learn. In addition to these common words the list may contain a small number of technical words which the pupils will need in their written work in arithmetic, history, geography, and other subjects, but which they would not be likely to use in daily writing. Examples of such words are "parallel," "emancipation," and "hemisphere."

Section II. How to arrange the Selected Words

Arrange according to difficulty and probable use in a grade.—After the maker of a spelling list has selected the words it is to contain, he confronts the problem of assigning them to the various grades of the elementary school and determining the order of the words within each grade. Two simple principles seem to apply to this arrangement: (1) The most dif-

ficult words should be presented in the advanced grades and the easier words in the earlier grades. (2) The words that pupils most commonly use in any grade should be placed there unless well learned in an earlier grade. These principles seem self-evident, but their scientific application involves extensive investigation of the relative difficulty of words and their common use by children. Moreover, sometimes the two principles conflict, for some of the greatest difficulties in remembering correct spellings occur with short words for which children may have frequent use in the early grades. For example, in Jones's investigation the short, common word "which" was misspelled more frequently than any other word. The common words "their" and "there" ranked next in the number of misspellings. Yet Jones says:

> The very words that give most trouble in spelling are almost invariably found in the second- or third-grade lists [from children's themes] and faithfully appear throughout the subsequent years. Over nine tenths of all words misspelled by the 1050 grade students are found in these two lists. . . . The second-grade list also contains the very useful words of all grades. (**13**: 24)

How to adjust conflicts of difficulty with pupil use.—The scientific arrangers of spelling lists have given considerable thought to the problem of how to adjust this conflict between the difficulty of spelling certain simple common words and the frequent use of these same words by children in the lower grades. Perhaps the following principles will prove to be sound upon further investigation:

1. First arrange all the common words in the order of difficulty as determined from tests.

2. Arrange exceptions by placing the few difficult but very common words as early in the grades as they are commonly used by children.

3. Invent specific devices for making the learning of these words easy and certain.

4. Place them for definite review in each succeeding year until they are thoroughly learned.

Lists should repeat difficult words for review.—The last statement in the preceding paragraph brings out a feature that we find appearing in the spelling lists of the best recent texts; namely, the repetition of words from year to year. Obviously many of the easiest words need no review by all the pupils. On the other hand, the most difficult need frequent reviews, while the moderately difficult need occasional review.

Lists provide a few new and a few review words for each day or week.—Finally, the scientifically constructed spelling list, which is designed to give the teacher the greatest benefit of all the detailed scientific studies of children's vocabularies and misspellings, divides the words for each grade into units containing new and review words which are to be taught each day or each week in the year. Some of the spelling texts now in use have attempted to do this. With such a text in her hand the teacher can proceed without any waste of her own time and energy to teach the common words in an order which is vouched for by the best scientific investigations. Thus, as in the case of handwriting, we have the best results of university research in a given type of learning made available in ready-made form for even the most isolated, inexperienced teacher.

How many words per day? Two or three new plus four review.—The exact number of new words that needs to be taught in a year, week, or day is easily determined from the fact that the total is about 4000. If these are distributed equally over eight years it results in 500 words a year. If we provide for two hundred schooldays in each year, we should need to teach 2 or 3 new words per day. Allowing for the very rapid growth in pupils' vocabularies in the second, third, and fourth grades, we might assign in these grades approximately 3 new words per day and assign 2 new words per day in other grades. If to these we add 3 or 4 review words per day we secure a total of about 6 words per day or 30 words a week. With such lists in hand we are ready to turn to the third phase of the teaching of spelling; namely, how to conduct the spelling lessons.

Section III. How to conduct Spelling Lessons

Plan in units of one week's work.—The planning of spelling lessons is probably best carried on in terms of a week's work. Let us assume that a teacher has ready on Friday a list of about thirty words—some new and some review—to be taught during the next week. The scientific investigators of the teaching of spelling would probably agree on some such procedure as the following:

Preliminary tests ascertain difficulties. Follow-up tests.—In order to determine what difficulties pupils have with the list for the coming week a written test should be given on Friday. Such a test may show that little drill is needed on some of the words, while others need very careful study and much drill. A method of conducting such a test, scoring the words and making the teacher's record of the difficulty of each word, is described by Tidyman in the following paragraphs from his excellent book "The Teaching of Spelling."

> The words are dictated to the children; then spelled back to the children for correction; finally, the teacher determines the number of errors for each word by a show of hands and enters the figure after each word on her record sheet [as shown in the sample record on page 58]. Thus her work for the week is laid out. By comparison with the "number present," the figures give some notion of the degree of difficulty of the several words and show the teacher the relative emphasis that should be laid on each word. After each day's lesson a similar test is given and the figures are entered in the appropriate column. If the teaching is thorough, there should be few errors or none in the daily test. If the teaching has been well proportioned, the words will have about the same number of mistakes. When a word is found to have too many errors, it is carried over into the next day's lesson and treated as before. The plan provides also for a review lesson of all the words of the week on Friday, with a record of errors; and, finally, a test without study after two weeks. The last is to get some evidence on the timing of reviews and may be varied as necessity demands. The use of this plan shows the teacher how to distribute her time and effort

among the words of the lesson and gives her effective and repeated checks upon the efficiency of her work. Teachers who have used the plan find that they take no more time for spelling than before,—fifteen to twenty minutes per day. The plan is suggested here for what it is worth as one that has been tried and used with some degree of success in actual classroom work. (**3**: 26–27)

RECORD SHEET FOR PRELIMINARY TEST AND FOLLOW-UP TESTS ON A WEEK'S SPELLING LIST (**3**: **145**)

Week of February 14	Preliminary test, Friday	Monday, February 14	Tuesday	Wednesday	Thursday	Friday	Review test, March 3
No. of pupils present	44	40	40	40	40	40	43
courage	12	1	.	. .	. .	0	1
careful	3	0	.	. .	. .	0	2
which	1	0	.	. .	. .	0	0
their	3	1	.	. .	. .	0	3
there	2	1	.	. .	. .	1	2
business	10	2	.	. .	. .	2	1
service	18	. .	1	. .	. .	1	3
servant	16	. .	0	. .	. .	1	1
faithful	19	. .	0	. .	. .	1	1
many	2	. .	0	. .	. .	1	0
friend	7	. .	0	. .	. .	2	0
since	6	. .	0	. .	. .	0	2
explanation	21	. .	.	4	. .	2	4
attention	16	. .	.	3	. .	2	2
always	3	. .	.	0	. .	3	2
write	4	. .	.	1	. .	0	0
writing	8	. .	.	2	. .	0	0
once	1	. .	.	0	. .	0	0
declaration	36	. .	.	. .	3	1	4
description	20	. .	.	. .	2	2	10
vacation	20	. .	.	. .	1	0	3
doctor	7	. .	.	. .	0	0	2
often	14	. .	.	. .	0	0	3
automobile	22	. .	.	. .	5	0	2

In order to get a clear idea of Tidyman's scheme as shown in the above table, the reader should follow the story which it tells by tracing what happened in the teaching of a few of the words. For example, take the first word, "courage," and follow it across the table and then compare its story with that of the demon "their," the fourth word.

Conducting a day's lesson.—The above account gives the larger outlines of the procedure for a week's work in spelling. We may now proceed to consider the conduct of a day's lesson. Tidyman gives a number of sample lessons, from which we may quote the one given below. A word of explanation is needed for the fractional values given in the description. The fraction $\frac{19}{32}$, which occurs after the word "steam," indicates that 19 children misspelled this word in the preliminary Friday test, when 32 children were present.

III. PLAN OF PRESENTING WORDS. GRADE III A, HART SCHOOL. NELLIE V. WEDDERSPOON, TEACHER

TIME: 15 MINUTES

Words and spelling difficulty: "steam," $\frac{19}{32}$; "please," $\frac{17}{32}$; "race," $\frac{17}{32}$.

Commonest errors: "stem"; "pleas," "ples," "plece"; "rase," "rac," "rass." Words are on the blackboard at the opening of school. Erase at the beginning of the spelling lesson.

I. Taking up words, one at a time, the teacher writes the word on the board and pronounces it. Children pronounce after her.

II. Several children use word in a sentence until it is clear that they know the meaning.

III. Visualization. In what way are "steam" and "please" alike? Underline similarities. Pick out familiar parts. Associate with "ease," "team," "tea." Sound "steam." How many sounds? How many letters? Why are there five letters and but four sounds? Sound "please." How many sounds? letters? Why six letters and but four sounds? Sound "race." How many sounds? letters? What difficulties in this word? What words have the same "ace" ending? Erase words.

IV. Rewrite word. Children look at it. Spell it looking at it; without looking at it. Call on individuals. Write it on paper. Look to see if it is correct.

V. Write words in lesson from memory.

In the final test, mistakes were made as follows: "steam," 3; "please," 2; "race," 0. (**3**: 146)

Devices to teach individual words.—Perhaps the most striking feature of the actual teaching in the above lesson is the care taken by the teacher to impress the correct form of each word upon the pupils. This calls for special devices to focus their attention upon the correct spelling of the difficult part.

Example of focusing attention on correct spelling of difficult parts.—Another example of this practice is given by Tidyman. In a sixth-grade lesson the following words occurred, with the index of difficulty indicated in each case: "druggist," $\frac{2}{3}\frac{9}{8}$; "digging," $\frac{1}{3}\frac{8}{8}$. The particular difficulty in each case was in using one *g* instead of two. The teacher's method in teaching "druggist" was the following:

First word: "druggist."

I. Pronounce and have children pronounce (in both cases be sure that the "ist" is not sounded as "est").

II. Several pupils use in a sentence.

III. Rewrite in syllables: "drug gist." Pronounce by syllables and have children pronounce after you, looking carefully at the letters of each syllable. What is the particular difficulty in this word? Underline it. What is the last letter of the first syllable? the first letter of the last syllable? Look at the word again. Spell it aloud. What other word in the lesson has the same difficulty?

IV. Close your eyes. Try to see the word.

V. Spell orally together. Have those who spell poorly or carelessly spell individually.

VI. Write the word two or three times on paper. (**3**: 148)

Devices for the spelling demons: "lice."—After investigators have continued their experimentation on spelling for a number of years, it is likely that we shall possess standardized special

devices for making easy the learning of even the most difficult spelling words—the spelling demons, such as "which," "there" and "their," "separate," etc. I remember such a device's being used by a visitor to the high school in which I was a pupil. Speaking to the class, he said, "Your teacher tells me you have trouble in spelling 'receive' and 'believe.' Here is an easy way to remember them." Writing the word "lice" on the board, he said, "Just remember 'lice': *i* follows *l* and *e* follows *c*, and you will always be able to spell 'believe,' 'receive,' and similar words." I have told this incident to classes of teachers and noted that some of them shuddered at the word "lice." If you don't like it you can substitute the word "Alice."

A class yell for "separate."—After I had related the above incident to a group of experienced teachers, one of them said that she found the upper-grade children in her departmental-geography classes were having difficulty with the word "separate." So she appointed a bright girl to devise a class yell from the word and then to act as cheer leader in drilling the class in it. The result was that the girl stood before the pupils and led them in the following:

S–E–P A!! R–A–T–E
S–E–P A!! R–A–T–E
S–E–P A!! R–A–T–E
Wheeeeeeeeeeeeeeeeee!!!

A few days later the principal of the building inquired who had started this new-fangled thing, for all the children on the playground were yelling

S–E–P A!! R–A–T–E etc.

Correct pronunciation and syllabication. *Often serve to correct misspellings.*—In many cases the correct spelling of a word is made much easier by correctly pronouncing and syllabifying it. Possibly the misspelling of "separate" is a good example of correcting mispronunciation, since many persons pronounce

this word as if it were spelled "sep er ate." In case of children from illiterate homes, where many slovenly pronunciations occur, the spelling difficulties arising from mispronunciations are very striking. Some of the most carefully prepared spelling books have given especial attention to organized phonetic instruction as an aid to both correct pronunciation and correct spelling.

Mental recall. *Stimulates active attention and checks vague erroneous impressions.*—A person may observe an object, such as an automobile or a bird or a word to be spelled, and think that he has a clear idea of its construction, yet when he looks away or closes his eyes, may find that his mental impression is very hazy. This fact has led investigators to believe that it is a good practice to have a pupil close his eyes or turn them away from the observed word, then endeavor to recall the correct spelling, then immediately glance again at the word, to see whether his recall is correct and to improve it in parts that are hazy or incorrect. This practice is known as memorizing by the method of immediately corrected recall. It is probably more effective than mere continuous staring at the word, not only because it fills in an otherwise hazy picture but also because it makes the learner more alert and promotes more active attention to the detailed form of the word.

Attention. *Increased also by other devices to secure interest. Games.*—Securing alert attention to the detailed construction of a word is closely related to the general problem of securing intense interest of the pupils in correct spelling; in fact, the reason for arousing intense interest is because it tends to elicit such alert attention. Among the most potent devices for arousing zest and interest in spelling are competitive games. The old-fashioned spell-down, which excited the interest of the whole community, is a good example. Excellent specific devices for organizing a variety of spelling contests and spelling games are described by the well-known expert S. A. Courtis in a pamphlet entitled "Teaching Spelling by Plays and Games." (1)

Drills. *Short, snappy, interesting drills based on careful teaching automatize correct spelling.*—One feature of such competitive games that gives them special interest is snappy, rapid activity. After the teacher has taken care to make sure that pupils are temporarily familiar with the correct spelling of a given list of words, more and more emphasis should be placed on such rapid, snappy recall. Not only should this gameful spirit prevail in the oral games, but Courtis recommends that it also enter into the written practice. He says that after the pupils have written the word carefully and legibly the speed should gradually be increased, as described in the following quotation:

> One of the effective forms of class drill is concert writing. The word to be learned is pronounced by the teacher and class together and then written letter by letter as it is spelled aloud. This is repeated five or six times in rapid succession. The rate of writing should be slow at first, then faster and faster like a college yell. (**1**: 8)

Securing almost perfect spelling.—Not many years ago an efficient school superintendent was satisfied if the pupils of the city in the semiannual examinations secured an average of 80 per cent; now an efficient superintendent is not satisfied unless the average is between 95 and 100 per cent. In some schools where a special drive is made in spelling, almost perfect scores are secured. This improvement is due mainly to the following factors, which were described above: (1) reduction of the words taught to those actually needed in school-writing or in social correspondence; (2) careful grading and arranging of the words, with specific repeated reviews of the more difficult ones; (3) frequent testing to determine what degree of study and drill each word needs; (4) careful *teaching* of the form of each word so as to assure its correct mental recall; (5) snappy, gameful drills; (6) intense pupil interest in becoming skilled spellers.

Fifteen minutes of specific teaching superior to incidental teaching in effectiveness and interest.—The great effectiveness of such teaching contrasts not only with the ineffectiveness of the

teaching of spelling which prevailed up to about 1900 but also with the ineffectiveness of the so-called *incidental* teaching of spelling. By *incidental* teaching is meant mere practice in spelling words as they arise in the various subjects—arithmetic, history, geography, composition, etc. Wherever such incidental teaching has been tried on a large scale in the formal drill subjects—notably in handwriting, spelling, and the pronunciation of new words in reading—and the results have been measured, the pupils have been found to rank far below those who have been taught by progressive, scientific, specific drill methods. Not only have the scientific, specific drill methods proved more effective but they have also proved to be most interesting to the pupils. One has only to watch a skilled, alert, progressive teacher conducting a snappy drill game to realize that pupils manifest the same intense interest in it that they do in the active games which constitute some of the happiest moments of their young lives. Where such teaching prevails, an excessive amount of time is not needed, fifteen minutes a day having been found sufficient to secure excellent results.

Individual instruction. *A further step by resourceful teachers.*—All the practices described above concern group or class instruction in a form that can easily be administered even by a beginning teacher, provided she is furnished with ready-made devices by scientific investigators. Very resourceful teachers may develop the technique to an even finer degree by individualizing the instruction in such a manner that each pupil practices himself upon the words with which he has had special difficulties in the week's preliminary test. An excellent account of just how to proceed in conducting such individualized teaching, together with measured results of its effectiveness, is given by Miss Laura Zirbes, in the *Elementary School Journal* for June, 1919, Vol. XIX, pp. 778–798.

Teaching pupils how to learn the spelling of words.—An important factor in such individualized instruction is training pupils in methods of studying words and of drilling them-

selves upon them. Even in the ordinary group instruction such training is also important. The following set of rules to guide upper-grade pupils in such activity is typical of these efforts to teach pupils how to study spelling.

HOW TO LEARN TO SPELL A WORD

1. The first step in learning to spell a word is to pronounce it correctly. When you are certain that you know how the word is pronounced, pronounce it, enunciating each syllable distinctly and looking closely at each syllable as you say it.

2. Close your eyes and try to recall how the word looks, syllable by syllable, as you pronounce it in a whisper. In pronouncing the word be sure to enunciate the syllables carefully.

3. Open your eyes to make sure that you were able to recall the correct spelling.

4. Look at the word again, enunciating the syllables distinctly.

5. Recall again, with closed eyes, how the word looked.

6. Check again with the correct form. This recall (as in 2 and 5) should be repeated at least three times, and oftener if you have difficulty in recalling the correct form of the word.

7. When you feel sure that you have learned the word, write it without looking at the book, and then check with the correct form.

8. Repeat this two or more times without looking either at the book or at your previous attempts.

9. If you miss the word on either of these trials, you should copy it in your spelling notebook, since it probably is especially difficult for you. (**2**: 72)

It will be noticed that these rules apply certain of the principles of teaching which we discussed above, notably those concerning correct pronunciation, syllabication, and immediately corrected recall.

Three installments of the spelling story completed.—The above paragraph completes the third installment of our short story of how to teach spelling. These installments may be summarized as follows:

I. The words whose spelling is to be taught should include only those which scientific investigations have found to be *com-*

monly used by children in school-writing or by adults in business or social correspondence.

II. The words should be carefully graded and arranged in annual, weekly, and daily lists by expert investigators who are familiar with the relative difficulties of the words and with their probable use in the several grades of school. Words needing review should appear often enough at psychological intervals to assure correct automatic spelling.

III. For the actual conduct of spelling lessons the best unit for planning is probably thirty or forty words, including new and review ones, to be taught in a given week. Preliminary tests upon these should be given to ascertain what difficulties pupils have. The correct spelling should then be carefully taught by methods which emphasize correct pronunciation and syllabication and immediately corrected recall. This should be supplemented by intensive, interesting, snappy drills in which the spirit of competitive games gives zest to the learning and assures its effectiveness through frequent attentive repetitions. Follow-up tests should be given, to determine what words still present difficulties.

We shall conclude the account with a few paragraphs on the fourth phase of the story.

Section IV. How to measure the Results of Spelling Instruction

Less simple than measuring handwriting.—In the preceding chapter, on handwriting, we noted that scales of measurement were easily devised in that subject because of the simple, restricted nature of its subject matter; namely, some seventy-five symbols which occur over and over in practicing handwriting. The task of devising scales for measuring the effectiveness of spelling instruction is much more complicated and difficult because of the diversity of its subject matter; namely, some four thousand common words and their varied frequency and difficulty.

R	S	T	U	V
50	=FOURTH GRADE			
66	58	50	=FIFTH GRADE	
79	73	66	58	50
88	84	79	73	66
94	92	88	84	79
forenoon	often	guess	meant	principal
lose	stopped	circular	earliest	testimony
combination	motion	argument	whether	discussion
avenue	theater	volume	distinguish	arrangement
neighbor	improvement	organize	consideration	reference
weigh	century	summon	colonies	evidence
wear	total	official	assure	experience
entertain	mention	victim	relief	session
salary	arrive	estimate	occupy	secretary
visitor	supply	accident	probably	association
publication	assist	invitation	foreign	career
machine	difference	accept	expense	height
toward	examination	impossible	responsible	
success	particular	concern	beginning	
drown	affair	associate	application	
adopt	course	automobile	difficulty	
secure	neither	various	scene	
honor	local	decide	finally	
promise	marriage	entitle	develop	
wreck	further	political	circumstance	
prepare	serious	national	issue	
vessel	doubt	recent	material	
busy	condition	business	suggest	
prefer	government	refer	mere	
illustrate	opinion	minute	senate	
different	believe	ought	receive	
object	system	absence	respectfully	
provision	possible	conference	agreement	
according	piece	Wednesday	unfortunate	
already	certain	really	majority	
attention	witness	celebration	elaborate	
education	investigate	folks	citizen	
director	therefore		necessary	
purpose	too		divide	
common	pleasant			

SAMPLE COLUMNS FROM THE AYRES SPELLING SCALE

This sample indicates that a standard fifth grade should average 66 per cent on column R, 58 per cent on column S, and 50 per cent on column T. A portion of column R is omitted here

Scales. *The Ayres scale tests ability to spell one thousand most common words.*—The problem of testing spelling ability was first simplified by Dr. Leonard Ayres, who prepared a scale for measuring the ability of school children to spell the words included in his list of one thousand most commonly used English words (described on page 54). The construction of the scale and the assigning of precise mathematical values to the correct spelling of each word in each school grade involved elaborate testing and mathematical juggling with the results. Copies of the "Ayres Spelling Scale" may be secured from the Russell Sage Foundation, New York City, for a few cents apiece. An excellent interpretation of its use in measuring the effectiveness of the teaching of spelling in a school system is given by S. A. Courtis in his volume of the survey of the Gary schools, pp. 79–145 (see number 7 in the bibliography at the end of this chapter). Advanced students of education will find Courtis's discussion very helpful. It is too technical, however, to make further treatment of it here profitable for the beginning teacher. A simple ready-made scheme for teachers to use in giving tests based on a course of study derived from the Ayres scale is given by Courtis in his pamphlet on "Teaching Spelling by Plays and Games."

The Iowa scale.—The department of education at the University of Iowa has devoted special attention to investigations of spelling instruction, and has derived what is probably the most valuable scale for teachers to use. The first step was W. N. Anderson's determination of the 2977 words most commonly found in the correspondence of Iowa people. With this list to start with, E. J. Ashbaugh proceeded to test pupils with the words, arrange the latter in order of difficulty, divide them into groups, and ascertain the average scores made by different grades upon each group. The scale was then organized in the same general manner as the Ayres scale. One form is for the lower grades, one for the intermediate, and one for the upper. Every teacher should send ten cents for the form she needs to the address given in reference 5 at the end of this chapter.

Section V. The *Science* and the *Art* of Teaching

Science discovers truth through precise investigating.—In the chapters on handwriting and spelling we have encountered a number of examples of scientific investigations in education made by such experts as Judd, Thorndike, Ayres, and Courtis, who used methods that are mathematically precise, objective, verifiable, and impartial. In the chapter on handwriting (pp. 40–42) we described at length the nature of such educational research in order to give the reader an idea of the meaning of scientific investigations of teaching. The term "science of education" is very old, but it is coming to suggest more and more such *reliable investigating,* in contrast with unverified opinions about teaching, which anyone may express. The science of education, then, may be thought of as including in its work the discovering and proving of methods of teaching which eliminate wasteful effort and enable us to secure greater and more valuable educational returns for our expenditure of teaching-energy.

Fine art of teaching consists in skilled technique.—The actual carrying on of truly valid teaching-processes in a skillful manner, on the other hand, constitutes the fine art of teaching. It is to this phase of education that the teacher devotes most of her thought and energy. Even after the best methods of teaching have been discovered and tested by scientific procedures, there always remains the need of such understanding and mastering of the detailed devices and practices. Just as we must have expert scientific investigators, so we must have expert, artistic teachers. Each kind of expertness calls for a highly developed technique. Up to this point in our discussions we have given only a few examples of the fine art—the refined technique—of actual teaching. These occurred at the beginning of the chapter on handwriting, and in the spelling lessons described on pages 59–60. We preferred in these chapters to emphasize the *scientific* aspects of teaching, because greater

progress has been made in the scientific studies of handwriting and spelling than in many of the more complicated types of learning, to be discussed in later chapters. Thus, we were able to give the reader the scientific point of view early in the book, in order that she might be more open-minded, more scientific-minded, in considering some of the more debatable problems that will later arise.

Fine art of teaching to be stressed in the following chapters on complex learning.—Having endeavored to establish this scientific point of view, we shall plan to emphasize the actual *art* of teaching to a greater extent in the later chapters dealing with more complicated learning processes, such as becoming skilled in silent reading, problem-solving, and expression. The complexity and difficulty of the teacher's art increase with the complexity and difficulty of the learning processes of the pupils. For example, learning handwriting and spelling are relatively so simple that even very dull pupils may succeed with them under comparatively unskilled teachers. On the other hand, learning to use abstract ideas, such as rules in arithmetic and grammar, is so difficult that even capable pupils often flounder under average teachers. This greater difficulty calls for corresponding resourcefulness and skill in the teacher if success is to be attained. Our next chapter, which deals with beginning reading, will present a kind of teaching in which the learning is fairly complex, but in which the fine art of teaching has been developed probably more highly than in any other subject. For this reason the chapter will contain a very concrete description of the actual reading lessons conducted by a skilled teacher at the very beginning of the first grade.

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2. Horn, E. "Principles of Methods in teaching Spelling as derived from Scientific Investigations." *Eighteenth Yearbook of the National Society for the Study of Education.* (Public School Publishing Company, Bloomington, Illinois, 1919.) Part II, pp. 52–77. Concisely stated rules for practice derived from canvass of all investigations. Very full bibliography.

3. Tidyman, W. F. *The Teaching of Spelling.* (World Book Company, 1919.) A most useful book. Simple, scientific, and practical. See especially the practical plans on pages 145–151.

4. Zirbes, Laura. "An Experimental Evaluation of Method in Spelling." *Elementary School Journal,* June, 1919, Vol. XIX, pp. 778–798. Individualized teaching concretely described and tested.

Measuring the effectiveness of spelling instruction.—Each of the above references also contains material on this topic.

5. Ashbaugh, E. J. "Iowa Spelling Scale." *University of Iowa Extension Bulletin,* Iowa City, Iowa, 1919. A most useful scale, containing some three thousand words. Useful also as a graded spelling list.

6. Ayres, L. P. *A Measuring Scale for Ability in Spelling.* (Russell Sage Foundation, New York City, 1915.) The well-known Ayres scale, with a volume describing its derivation. The scale itself is sold separately for a few cents a copy.

7. Courtis, S. A. *Measurement of Classroom Products.* (General Education Board, New York City.) Price (in 1919), 30 cents. This is one volume of the "Survey of the Schools of Gary, Indiana." Chap. iv, pp. 79–145, contains an elaborate but simple interpretation, by an expert, of the measurement of spelling ability. A model publication.

8. Monroe, W. S., De Voss, J. C., and Kelly, F. J. *Educational Tests and Measurements.* (Houghton Mifflin Company, 1917.) Chap. iv, pp. 112–144.

9. Starch, D. Educational Psychology. (The Macmillan Company, 1919.) Chap. xviii, pp. 322–348.

Spelling vocabularies.—The teacher's chief interest under this heading is to find a textbook which contains scientifically constructed lists of words. See also the Ashbaugh reference, 5, above. The following references are noted investigations. They are described on pages 53–54.

10. Anderson, W. N. The determination of a Spelling Vocabulary based upon Written Correspondence. (University of Iowa, 1917.)

11. Ayres, L. P. *The Spelling Vocabularies of Personal and Business Letters.* (The Russell Sage Foundation, New York City, 1913.)

12. Cook, W. A., and O'Shea, M. V. *The Child and his Spelling.* (The Bobbs-Merrill Company, 1914.)

13. Jones, W. F. *Concrete Investigation of the Material of English Spelling.* (University of South Dakota, Vermilion, South Dakota, 1914.) Price, 10 cents.

CHAPTER V

BEGINNING READING

Main points of the chapter.—1. The technique of teaching beginning reading has been very highly perfected.

2. Hence it is described here in detail as an example of the fine art of teaching.

3. Several actual lessons conducted by a skilled teacher are described, and are followed by discussions of the principles which they illustrate.

4. The first five weeks are devoted to blackboard-reading and chart-reading based on action words, incidental reading, and nursery rimes.

5. These initiate the correct reading attitude of trying to get meaningful and interesting experiences from printed material.

6. The general procedure is from a reading of the whole story to a study of individual lines and phrases and then to drill on individual words which are learned by sight.

7. The skill acquired in five weeks of such reading enables the children to begin the reading of simple book material with fluency and comparative ease.

8. Delightful, thrilling stories, covering several pages and containing many repeated phrases, enable the pupils to do page after page of reading and to complete many books, including primers and first readers, in the first year.

9. Such practice with a familiar vocabulary gives skill in the fundamental interpretative reading habits.

10. After these are well started, training in the independent phonetic analysis of new or unfamiliar words is systematically organized in separate periods.

11. By the beginning of the second year children who have had the two lines of training described above are able (*a*) to read simple material fluently and with clear comprehension of its meanings and (*b*) accurately to analyze and to recognize new printed words within the range of their comprehension.

Reading to be discussed in three chapters.—Our discussion of reading will be divided into three chapters, as follows:

Beginning Reading (the present chapter).

Scientific Investigations of Reading (Chapter VI).

Skillful Silent Reading (Chapter XI).

Divisions of discussion of beginning reading.—Our present chapter, which deals with beginning reading, will be divided into several sections, as follows:

I. General description of first-grade activities, including reading (p. 73).

II. Pre-primer blackboard-reading and chart-reading (p. 77).

A. Sample lessons (p. 77).

B. Principles of teaching pre-primer reading (p. 92).

III. Beginning book-reading (p. 103).

A. Sample lessons (p. 103).

B. Principles of teaching (p. 107).

IV. Independent recognition of new words; phonetic analysis (p. 112).

A. Sample lessons (p. 112).

B. Principles of teaching (p. 117).

V. Second-grade lesson illustrating achievements and technique (p. 120).

Section I. General Description of First-Grade Activities, including Reading

Highly developed technique of teaching first-grade reading.—The technique of teaching first-grade reading has probably been perfected more highly than any other phase of elementary teaching. Most of the published series of readers contain teachers' manuals, which give directions for teaching each of the reading lessons during the first few months in the first grade. Many of these manuals contain excellent lessons, some of which we *might* have reproduced to give the inexperienced teacher a concrete idea of a skillful beginning in teaching reading.

Actual example observed.—It seemed more instructive, however, to present a description of the work of an actual teacher who uses a variety of materials and devices. Consequently I observed for some time, at the beginning of the year, the teaching of reading in a section of the first grade of the Elementary School of The University of Chicago. The teacher was Miss Marjorie Hardy.

Beginning reading no longer the "scourge of infancy" but the road to fairyland.—I shall describe Miss Hardy's teaching in considerable detail, in order to give the reader some feeling of the atmosphere of a modern schoolroom in which the fine art of teaching has been perfected through careful study and practice. In such a situation learning to read is no longer the "scourge of infancy," as Rousseau called it in 1762 and as it was still, in many places, a generation ago. Instead, our modern teaching early opens to children the road to the fairyland of fable, myth, romance, and adventure, as found in the world of children's books. Every step that they take along this road under the teacher's guidance is playful and delightful. At the same time, each step is a part of a most systematic and progressive scheme of learning, all parts of which have been definitely planned in advance. Yet so thoroughly are the various teaching processes adapted to the children's instinctive interests and activities that *delight in learning* and *systematic progress go* hand in hand.

Incidental reading. *Connected with studies of home, farm, etc.*—Since much of the reading in Miss Hardy's room was intimately connected with other activities of the children, it is desirable to get an idea of the general course of study in the first grade, in order to understand the principles of teaching upon which the reading was based. The work of the first two or three months in this first grade was very much like that of an advanced kindergarten group, but with more specific training in reading and number. Like a progressive kindergarten, the first grade introduced children to a study of home and community

life through play, this being the first step in a progressive study of social life, which, as it continues through the grades, develops into the history, geography, and civics of the later years. The first social unit discussed was the home. The children talked about the rooms which they had in their own homes and the purposes that each served, saying, for example: "We cook in the kitchen. We eat in the dining-room. We sleep in the bedroom," etc. Playrooms were constructed out of blocks or paper or cardboard. Each child chose a room, planned the necessary furniture, constructed it, described his plans and his work, etc. The little sentences quoted above were used incidentally for reading-material.

The study of the home was followed by a study of farm life. The farmyard and its buildings, roads, and occupants were constructed in a sand-pan after making the plan on a large sheet of manila paper with labels for the house, barn, road, etc. The story of the farmer bringing his crops to town or to the railroad for shipment was developed. Some of the products were followed into the grocery store, which was studied for a few days and linked up with the activities of the home. Thus the children were given a playful but thoughtful initiation into the study of social activities and the interdependence of various social units—families, farms, stores, etc.—in the community. In connection with these studies there was much incidental reading, counting, and measuring.

Specific reading lessons. *Begun with favorite nursery games and rimes.*—In addition to these meaningful social studies, another type of kindergarten activity was extensively used in this first grade; namely, children's games centering around nursery rimes and songs, such as "Jack, jump over the Candlestick," "Jack and Jill," "The Old Cat is Asleep," etc. These rhythmic but often nonsensical games and songs constitute one of the most characteristic and pleasurable features of child life; and sometimes of adult life as well, as witnessed by the remark of a learned professor, a friend of mine, who said recently that

among his favorite verses and songs is "The Owl and the Pussy-cat went to Sea." This he enjoys not only for its lilting rhythm but also for the sheer nonsense of its lines. In the kindergarten such nursery rimes are used in the form of games to train in physical activity, rhythmic control, singing, oral expression, coöperation, etc. The same educational ends were served by these activities in the first grade. In addition, however, they furnished the subject matter for many of the reading lessons of the first few weeks.

Fifteen minutes of specific reading plus much incidental reading.—With this general picture of work and play during the first few months in the first grade we may proceed to a description of the teaching of reading which I observed during the period set apart for it in the daily program. This period occupied about fifteen to twenty minutes in the morning. In addition to this specific period there was, as suggested above, much incidental reading throughout the day which I did not see; in fact, in conversation, Miss Hardy emphasized the fact that every activity during the day was made the basis of some reading. This might be a "line for the day" on the bulletin board in the morning (for example, "We plant our bulbs today"), a word here, a phrase or sentence there, etc.

Even the specific reading period contains a variety of activities.—On the other hand, the intensive reading period of fifteen minutes did not consist of a mere continuous reading of one kind, but was broken up by a variety of activities, which will appear in the descriptions that follow. This variety is necessary in order to avoid the nervous strain, inattention, and consequent waste that result, with children of this age, from prolonged concern with a single form of intellectual activity.

Homelike atmosphere of room puts children at ease.—Most of the children in Miss Hardy's room had not been in the kindergarten, so the first day's activities were especially arranged to make the little ones feel at home and comfortable and contented in the strange, new environment. Blocks, balls,

dolls, and other playthings were on hand, and a general "homy" atmosphere was created. The effect of one item was noted in the remark of a child who told his mother, "We have *curtains* in our room at school *just like* we have at *home*."

Section II. Pre-Primer Blackboard-Reading and Chart-Reading

A. *Sample Lessons*

Action words and games provide first reading material.—The first reading experiences were given in connection with the following *action words*: "run," "hop," "skip," "jump." These were written on the board and taught by means of a game in which one child "blinded" his eyes in a corner, and another child ran to the board, pointed to a word (for example, "hop"), whispered it to the teacher, *hopped* to his seat, and said, "Ready." Thereupon the child in the corner said, "I heard you hop" (provided he guessed right), and ran to the blackboard and pointed to the word "hop." These activities performed frequently during the day were fun for the children and provided relaxation and physical exercise for them. When the children had to go to the board or to any other part of the room, the teacher frequently wrote "hop" or "skip" etc. on the blackboard, and the children used the corresponding method of locomotion.

First nursery rime from books which children have examined. "Jack, be nimble."—On the fourth day of school the teacher introduced during the reading period the nursery rime

Jack, be nimble,
Jack, be quick,
Jack, jump over
The candlestick.

The children had been examining various books of nursery rimes and stories which reposed on the "library table" at one

side of the room. Miss Hardy then asked some children to show her their favorite rimes and then skillfully centered their attention on one which was especially suitable for an easy reading lesson; namely, "Jack, jump over the Candlestick."

Courtesy of the Francis W. Parker School, Chicago

MURAL DECORATION FOR A FIRST-GRADE ROOM

Attractive nursery pictures like the above are frequently found in first-grade rooms. They may be framed, or painted on the walls, or even painted on the transoms, so as to give the effect of stained-glass windows. They furnish excellent subject matter for reading and language lessons

Games played with candlestick and at blackboard.—A candlestick having been provided for the occasion, it was brought out, and the children played a game of jumping over it, meanwhile becoming more familiar with the rime. Miss Hardy then said she knew another way of playing the game, in which all could

play at once. The children wondered how it could be done, and the teacher showed them how to represent a candlestick on the blackboard with the chalk, and by curved lines how to show Jack jumping back and forth (as pictured on page 15). The children exhibited considerable individuality in their drawings of the candlestick, some adding a little curved handle, others adding the flame with smoke trailing off. They practiced the rhythmic sweeps, back and forth, while reciting the rime in unison.

Pupils tell teacher how to write rime on blackboard.—Finally Miss Hardy said: "Wouldn't it be fun to have this rime written on the blackboard so that we could all see it and read it instead of having just one copy in the book? . . . I will write it, but you must help me by telling me just what to say. . . . Who can tell me what to write first?" A boy said, "Jack, be nimble." Miss Hardy wrote this line, and then proceeded to write the other lines as the children dictated them. This process exemplified *the finest art in teaching the first reading lesson* with continuous material. Why? We shall see when we come to the systematic discussion (which follows this story) of the principles of teaching first-grade reading. Meanwhile we shall note that the end of the reading period had arrived, and Miss Hardy told the children she would write "Save" on the blackboard, to tell the janitor not to erase their rime until they wanted him to.

Great detail of fine technique illustrated by fuller descriptions.—In order to illustrate how many devices and varied processes are included in the initial teaching of reading, we shall describe in somewhat greater detail the reading lessons which followed the first presentation of the rime as described above. Some of these devices illustrate not only the teaching of reading itself but also the intimate correlation with other activities and procedures in order to avoid fatigue and inattention.

Second day with "Jack, be nimble." *Reading from large printed chart.*—The next day, at the beginning of the reading period, the class counted in concert the number of children

present in the group, and one child then counted out the appropriate number of little chairs and arranged them in a semicircle at the front of the room, not far from the blackboard. The teacher then wrote "skip" on the board, and the children

Courtesy of the Francis W. Parker School, Chicago

"LITTLE MISS MUFFET" USED TO DECORATE THE WALLS OF A FIRST-GRADE ROOM

Sometimes such decorations are painted by the students in the art classes of the local high school

skipped gayly to their places. When they were settled and attentive, the teacher recalled the rime of the day before, asking them how many lines were in it, and reminded them that she had written "Save" on the board. She then said: "I have a surprise for you today. I had the rime, with a picture, printed on a chart

[which she then hung before them], so that the janitor could clean the blackboard. Let's see whether we can all read the rime from the chart just as we did from the blackboard yesterday."

Group reading of whole rime.—Miss Hardy then held a long strip of cardboard under each line as she and the children read it in unison.

Individual reading of whole rime.—Several children were then given a chance to read the rime individually, while the teacher moved the cardboard strip down.

"*Show us the line that says.*"—The teacher then asked, "Who can run up and show us the line that says 'The candlestick'?—Margery." Margery held the strip of cardboard under the right line. "Who sees the line that says 'Jack, be nimble'?—Richard."

Duplicate chart cut into lines and inserted in a rack.—Miss Hardy then brought out a duplicate chart of the rime. She said: "Here I have another copy of the chart, without the picture. See whether it looks the same . . . four lines . . . 'Jack, be nimble' . . . just the same. Do you think it would be fun to cut off each line and have a child put it where it belongs in this rack?" Here Miss Hardy indicated a rack which hung on the blackboard and was so constructed that cardboard strips could be easily inserted.[1] With appropriate remarks each line was cut off and given to a different child, who was assisted in placing it in the rack. With the last line the teacher said: "Isn't 'candlestick' a long word? We can easily tell it because it is so long."

Game of finding corresponding lines in the two charts.—"Now," said Miss Hardy, "I am going to give you a new game. I am going to take a line out of the rack while you have your eyes shut. Then you look to see which line is missing and find the same line on the other chart. Be sure to study it out before you raise your hand. Now, blind your eyes."

[1] This important piece of first-grade equipment is known as the Plymouth Chart and is sold by the Plymouth Press, 6749 Wentworth Avenue, Chicago, Illinois.

Taking out the strip "Jack, be quick," the teacher said, "Ready." After giving most of the children time to raise their hands, John was called on. "What line is it?" "Jack, be quick," said John. "That's right; now match it up on the full chart (that is, hold it under the line that says the same thing) and then put it back where it belongs in the rack."

The game was then repeated with the third line, "Jack, jump over." The child who was called on said it read "Jack, be quick." The teacher then assisted him to read the complete chart from the beginning until he came to and recognized the correct line. The game was continued until all the lines had been used.

Game of giving children lines from rack and recalling and replacing them.—"Now we shall play another game," said Miss Hardy. "I shall give each line to a different child, and when I call for that line the child who has it must run up and match it on the whole chart and then place it where it belongs in the rack." After the strips were handed out, she asked, "Who has the first line?" The child who had it was not sure, although her neighbor, looking over her shoulder, volunteered "I know who has." "Florence," said the teacher, "I think you have. Run up and match it. . . . That's it. What does it say? . . . Put it in place"—and so on until all the strips were returned, the children being more successful as they grasped the idea of the game.

Test shows that children know location but not form of a word.—The period was now almost over. A little test, or demonstration, of what the children knew and did not know came when Miss Hardy said: "I see the word 'Jack' some other place in this room. I wonder who can find it." The children looked around and located a picture, cut from a magazine, showing a boy going to school with his father. Under the picture Miss Hardy had printed on a card in large letters

This is Jack.
He is going to school.

One of the children who volunteered was asked to hold a short strip of cardboard under the word "Jack." Instead he held it under "This is." Why? Because, in the rime, "Jack" was always at the beginning of the line, and this child had an idea of its location but not of its form. "Come to the rime and find 'Jack,'" said Miss Hardy. "That's right. Now look at it closely and then find the same word on the other card." This time the child succeeded easily, and the class was turned over to the gymnasium teacher for a period of outdoor play.

Third day with "Jack, be nimble"; beginning "Jack and Jill." *Review reading of rime and lines.*—The next day, after the children had "hopped" to their chairs, the rime was reviewed as follows:

First, individual children were given a chance to read the *whole* chart through, advancing to it and holding a long strip of cardboard under each line as it was read.

Miss Hardy then inserted the *separate lines* in the rack as she got responses to her questions: "What will the line say that I put in first?" "What will the next line say?"

Pupil becomes "teacher" in game of blinding eyes and guessing removed line.—Miss Hardy then said: "Wouldn't it be fun to play again the game in which you blind your eyes and somebody takes out a strip and you find which one it is? . . . Only, this time we shall let a child be the teacher." She then called on a child, who advanced to the rack. The game then proceeded as follows: (1) The child said, "Blind your eyes"; (2) took out a line; (3) whispered to the teacher what the line said; and (4) said, "Ready." (5) The children held up their hands; (6) the child called on Mary; (7) Mary named the right line, was given the strip, "matched" it with the corresponding line on the full chart, returned it to the rack, and in turn became the "teacher." Three children were given turns in this game.

Blackboard activity for all in rhythmic drawing to rime.—"Now," said Miss Hardy, "let's all go to the blackboard and make Jack jump over the candlestick. I have marked off spaces

for children on the side board. Count the spaces. How many are there? . . . How many children are there? . . . How many more spaces do we need? . . . All right; I will mark off four more on the front board." The children then went to the board. They were asked each to show his right hand and left hand (some were not sure which was which), to take the chalk in the right hand, to draw a candlestick in the middle of the space, and then to start the chalk at the left side of the space and to draw as they recited the rime (producing the result described on page 15).

"Jack and Jill." *Told by children and played at blackboard.* —The children then returned to their seats, and the teacher said: "I am thinking of another verse that has 'Jack' in it. Can you think of one? Mine begins 'Jack and,'" whereupon several of the children were ready immediately with "Jill went up the hill" etc. "Who will show us at the blackboard the hill, with Jack and Jill going up and tumbling down, something like the way we showed Jack jumping over the candlestick?" The children then drew curves on the board as described on page 15 in our discussion of handwriting.

Written on blackboard by teacher as children dictate.—Then the pupils returned to their chairs, and the teacher suggested that she write the rime on the board and prepare a chart of it for the next day. They first recited the rime in unison, and then Miss Hardy said she would write it as they told her what to write. "What shall I write first?" The children said, "Jack and Jill went up the hill." This was written as two short lines; thus:

Jack and Jill
Went up the hill.

The children eagerly anticipated each succeeding line and volunteered joyful remarks about "how long" some of the lines were.

Children read rime while running pointer under each line.— A few minutes remained for reading the whole rime through, one child, with Miss Hardy's assistance, running a pointer along

under each line as it was read. "Tomorrow," said the teacher, "we shall have this rime printed for you on a chart."

Fourth day of rime-reading: chart of "Jack and Jill." *Free conversation about the picture.*—When the chart was displayed the next day the children volunteered various remarks about the picture which was at the top, such as: "Jack is tumbling down." "Jill hasn't tumbled yet." Miss Hardy added comments about the "heavy pail of water," the "steep hill," etc.

Chart read as in case of "Jack, be nimble."—The chart was then read in a manner similar to the reading of the candlestick chart, as suggested briefly in the following memoranda:

1. *Whole in unison.*—"Let's all read it together," said Miss Hardy, and the children proceeded as she held a long strip of cardboard under each line.

2. *Whole by one pupil; praise for good reading.*—"Florence, come and read. Hold the cardboard under each line. . . . That's fine. We can always hear Florence, because she reads so clearly."

3. *"Finding the line that says." Mild rebuke for irresponsible child.*—"Who sees the line that says 'Went up the hill'?" Mary's hand being up, she was called on but was not ready. "You must always see the line before you hold up your hand." Several lines were practiced in this way, a child advancing, placing the cardboard under the desired line, and reading it.

4. *Inserting separate strips in rack. Children on watch for mistakes.*—"Now, all stand up. Here I have each line on a separate strip. . . . Let's see whether I have enough. How many lines are on the chart? . . . Count my strips. . . . Which one must I put in first? . . . Now I am going to put in the others rapidly, and you must watch to see that I don't make any mistakes." Miss Hardy then purposely inserted "broke his crown" before "Jack fell down." The brighter children soon discovered this and suggested the correct change. Seats were then resumed.

5. *Blinding eyes and finding removed line.*—They then played twice the game of having the class blind their eyes while one

child took out of the rack a line which the class then proceeded to discover on the chart.

New stage: learning individual words. *Children match word cards with words in rime.*—The teaching then proceeded to an entirely new stage as Miss Hardy produced a pack of cards upon each of which was printed a word in large letters. The words were "Jack," "went," "hill," "water," "up," "down," "fell," "after," and "over," the last word being borrowed from the candlestick rime. She said: "You see these cards. They are not lines. They are just words. Some are taken from the first line, some are from the second line. John, here is one for you. Your word is in the first line. See if you can find it. Florence, your word is in the second line." Each child was given a card until all were supplied. "Study your line carefully to find a word that looks just like yours. As soon as you can find it raise your hand. . . . All right. Hands down. We will begin with Arthur. When I call your name run up to the chart, hold your card under the right word, and tell us what it is. Now, Arthur."

Match correctly but cannot name. Reading as far as matched word.—Arthur matched correctly the word "went" in the first line; but when Miss Hardy asked, "What does it say?" he couldn't tell. By reading the line from the beginning, however, he easily found what it said. The next child matched "hill" correctly, but called it "Jill." Miss Hardy helped her to point to each word from the beginning of the rime as teacher and child read *rapidly and smoothly* as far as "hill." The next child was taught "up" in the same way. "All watch carefully," said Miss Hardy, "for you may have to find this same word later."

Flash drill with cards called "moving-picture show."—The period then concluded with a rapid "flashing" of the cards by the teacher, a game which the class called their moving-picture show." "Remember," said the teacher, "as I bring each card from the back of the pack you watch it carefully, and just as soon as I place it on the front, you tell me what it is."

Fifth day of rime-reading. Principally drill games with word cards and rime chart.—After the preliminaries of getting seated the next day Miss Hardy said: "I have so many games for you today that we must do them quickly. First we will read the whole rime. We will let Alice do it, because she has such a good, clear voice."

After this reading the class played very briefly "finding the line which says."

Each child given a word card to match and name. Appropriate praise and remarks on hygiene.—Next, each child was given a word card and told to find the same word in a given line on the chart. When all had their hands up except two children, Miss Hardy said to these: "You watch, and we will help you later. Hands down." And the game proceeded as on the day before. Incidental remarks were made about keeping the cards away from the mouth and face and holding them correctly. To the child who had "Jack" Miss Hardy said, "See how many 'Jacks' you can find," and, when he had found four, exclaimed, "Good for you!" When a boy found the word "water" quickly and said it, appropriate praise was bestowed. Then to the class she said, "Everyone look at this word and say it."

Special devices for some words.—To the cards for "up" and "down" special attention was called. "Children, look at these two words. The short one is 'up,' and the longer one is 'down.' When you play seesaw you go up and down [making appropriate gestures with the corresponding word card]. I am going to mix these two words up. See if you can tell me quickly which one I show you" [proceeding to flash "up" and "down" several times]. Similarly, devices were employed with the words "after" and "over," which were giving special difficulty.

"Moving-picture show" game again.—The children then stood up while the "moving-picture show" game was run off by flashing the cards.

Teacher inserts individual words in rack as pupils name each.—The children being seated, Miss Hardy said: "Now I

am going to put these words in the rack. They will be all mixed up, and as soon as I place a word I want you to tell me what it is."

Naming each word as teacher points. Pupils on qui vive for speed.—This process finished, Miss Hardy said: "As I place an eraser under each word, say it. See if you can say it so fast that I can hardly keep ahead of you. . . . That's fine, but if you don't know them, don't say them."

One pupil points to all the words and names them correctly. Children clap approval.—"Now, Harry may say all the words as he holds the eraser under each. . . . Wasn't that fine? He said every word right. Let's clap for him."

Blinding the eyes and then finding the word pointed to.—The reading lesson then concluded with a new "blind the eyes" game. One child blinded his eyes in the corner. Another ran to the rack, held an eraser under one word (for example, "over"), returned to his seat, and said, "Ready." The child in the corner stepped to the rack and, placing the eraser under each word in turn, said, "Is it 'water'?" In unison the children answered, "No, it is not 'water,'"—and so on until he said, "Is it 'over'?" whereupon they clapped their hands and cried, "Yes, it *is* 'over.'"

"The Old Cat is Asleep" game; activity, fun, moral training.—As a matter of relaxation and physical activity the teacher then introduced the children to a game that seemed to the observer to be merely a child's game (that is, not a game for teaching reading); namely, a game called "The Old Cat is Asleep." This is a form of the musical-chair game. The children played it twice with zest, and as some of them tended to run to the chairs before the last word of "cannot catch us" was said, Miss Hardy made an appropriate remark about "playing fair."

Nine separate words learned by sight.—Subtracting such relaxation activities, about fifteen minutes of actual reading activity had been observed. The children had acquired by this

time greater familiarity with the printed lines, and knew with fair accuracy the nine separate words which scarcely any of them had been able to name shortly before the end of the reading period of the previous day.

Sixth day of rime-reading. "*The old cat is asleep.*"—Unexpectedly to the observer the next day's reading period began with the new game, "The Old Cat is Asleep," which had been played the day before. After playing the game again, Miss Hardy produced a chart with the picture of the "old cat" and the lines

The old cat is asleep,
The old cat is asleep,
The old cat is fast asleep,
And cannot catch us.

Strips cut up before the children's eyes to obtain phrases and words.—In the reading lesson based on this material the class followed the same plan as in the preceding ones; namely, first reading it as a whole, then finding individual lines, then drilling on single phrases and words. This time Miss Hardy cut up the separate strips or lines before the children's eyes to obtain the individual word cards.

Examples of special aid to slow pupils.—This process helped some of the children considerably, for while some had succeeded admirably in every activity, from reading the whole to matching and naming individual words, other children were making very slow progress. For example, one child could not understand the term "last word." Miss Hardy said to him, "Tell me the last word in this line," as she pointed to and read "The old cat is fast asleep." The child said, "The old cat is fast asleep." "No, dear," said Miss Hardy, "I want just the last word. Now listen for it, as I say the line." The teacher repeated the line, pointing to each word in turn. Again from the child came the same answer, "The old cat is fast asleep."

Another example of the reaction of a slow child occurred in identifying the word "old." The child had been given the word

card for "old" and was trying to match it on either chart—the whole one or the cut-up one in the rack. He had five chances,—five "olds" before his eyes,—and he couldn't find one. Miss Hardy took the phrase "The old cat" from the rack. She read it with the child. Then she cut off "The" and asked what was left. Then she cut off "cat" and asked what was left. The child said "old" and seemed to be sure of it. He matched it correctly with the five "olds" which remained in the chart and rack. Miss Hardy then gave the work a "forward look" (a device which she frequently used) by saying to the class, "When we come to read in our storybooks we want to be sure about this word 'old' because we shall read about the *old* woman, the *old* man, and the *old* cat many times." After about two minutes of practice, or "game," with the last line, "And cannot catch us," Miss Hardy returned to the child who had been given special practice with "old." Holding up the "old" card she asked, "What does this say?" "Can," said the boy. Such are the difficulties encountered by and with slow learners,—difficulties that call for the most watchful, sympathetic, patient, and persistent individual attention from the teacher.

Subsequent specific reading lessons with other types of material. "*Goldilocks and the Three Bears.*"—When the rime-reading described above was being carried on during the reading periods, the children had been concerned during the literature and construction periods with the experiences of Goldilocks and the three bears. The pupils had constructed in the sand-pan a paper house for the three bears and had surrounded it with twigs and leaves to represent a forest through which roamed, hand in hand, three plasticene bears.

Manila-paper book of reading selections made by each child to show parents.—Each child had also made a book from manila paper in which to paste the verses and stories which the class had been reading "so they could take them home to read to mamma and papa." Each child's copy of a jingle or story was printed by Miss Hardy, who set up rubber letters in a

wooden type-holder, thus making a rubber stamp from which the necessary copies could be easily made.

Pupils compose story of the Three Bears to paste in book.— When it came to putting the story of the Three Bears in the books the class spent some time in boiling it down to a few short lines that would best tell just what they had done. They finally chose these:

We made a house.
It is in the woods.
We made three bears.

One is a big bear.
One is a middle-sized bear.
One is a little bear.

Reading practice with this material as with nursery rimes.— The reading practice with this material followed the same general lines as those described for the nursery rimes.

Five weeks of gameful pre-primer blackboard and chart-reading to initiate correct reading attitudes and habits.— Such gameful chart-reading, gradually merging with reading of the same materials pasted in the books which they made, constituted the reading activity of the first five or six weeks. It is one example of the common practice in progressive schools and reading-systems of giving considerable "pre-primer" reading before a regularly printed book is begun. So many fundamental principles of psychology and methods of teaching reading are involved that we shall now turn to the systematic exposition of them as illustrated by Miss Hardy's lessons. Then we shall describe concretely the second and third stages in developing skill in reading; namely, training in reading a printed book and training in the independent recognition of new words. The first stage, with which we are now concerned, is intended to initiate certain correct reading attitudes and habits which may persist throughout the pupils' later reading in and out of school.

B. *Principles of Pre-Primer Blackboard-Reading and Chart-Reading*

1. **To initiate correct reading attitudes, not mere word-calling.**—Perhaps the most fundamental principle of teaching reading which is illustrated by Miss Hardy's pre-primer lessons is the necessity of giving the pupils a correct *attitude* toward the reading material. We may easily illustrate what we mean by using a negative example; namely, we do *not* want the child to form the attitude of merely trying to pronounce words without regard to their meanings. Yet this was the dominant attitude of first-grade children in much of the old-fashioned teaching of reading, in which a child stood up with a book in his hand and, with his eyes glued in turn upon each word, haltingly read, "This—is—a—cat."

Varieties of reading attitudes: poetry versus headlines; "funnies" versus Gettysburg Address.—Just how to define or describe the correct initial reading attitude is slightly difficult because the attitudes with different types of reading material differ somewhat. For example, contrast the attitudes in reading poetry and in rapidly scanning a newspaper column. In the poetry-reading your attitude is likely to include enjoying the lilt and swing of the rhythm, and your reading, consequently, will include careful rhythmic phrasing; in the newspaper-scanning your attitude is one of neglecting much of the material and actively "grabbing off" a few ideas or statements. Another example of contrasting attitudes in reading is found in reading the "funnies" in the newspaper, as compared with reading Lincoln's Gettysburg Address. We do not need to describe the different attitudes in these two cases, since they are so obviously different. The emotional "set" of our mind in the case of reading the "funnies" is such that it shocks us to think of approaching Lincoln's address with the same attitude.

Getting meaningful and interesting experiences from the earliest reading.—These variations in reading attitudes become

of very great practical importance in training in skilled reading; for example, training a pupil to *enjoy reading poetry* involves a very different type of practice from training him to *scan a newspaper* column. As related to training in various types of skilled silent reading, *variations* in reading attitudes will be made the basis of the discussion in a later chapter. For our present purposes it is sufficient to note that perhaps the biggest factor in determining Miss Hardy's method of approaching reading is the desire to make it as much like real reading as possible from the very beginning. In such real reading the attitude of getting some type of meaningful and interesting experience from the printed material is a dominant feature.

2. **Meaningful content necessary.** *Action words; incidental reading.*—In order to develop the attitude of getting meaning from printed material it is necessary to select content that is especially suited to the purpose. The simple action words with which Miss Hardy began furnish an admirable example, for when such words as "hop" or "skip" are written on the board as commands, not only does the attention center on the meaning but the pupil must grasp the meaning before he can execute the command. Similarly, when such words as "barn" or "house" appear on the plan of the farm which is to be made in the sand-pan, the attention naturally centers on their meaning.

Nursery rimes give a complex experience which constitutes their meaning.—When we come to the nursery rimes, however, the meanings to be had from the reading become much more complex, since the whole complex experience of a child's enjoyment of a nursery rime is involved. This experience consists of much more than understanding the individual words or even understanding all the phrases. This fact may be illustrated by my friend's enjoyment of "The Owl and the Pussy-cat went to Sea" (described on page 75), or by the reading experience of another professorial friend, who says that at least once a year he gets hungry to read a certain one of Poe's poems, and consequently has read it many times. "Yet," he

adds, "for the life of me I can't tell what Poe is talking about in some places in the thing." Similarly, in teaching children to read "Jack and Jill" we are concerned primarily in giving them the big reading experiences which children naturally get from such material. Necessarily this will include an understanding of most of the words and phrases, such as "went up the hill" and "came tumbling after." The picture above the rime helped some children to get these ideas. It would hardly be desirable, however, to dwell at any length on the meaning of "broke his crown." In fact, I have often wondered what notion a child associates with this phrase. Certainly it would not be pleasing to give him a vivid, gruesome picture of a child with a real broken head.

Hence "meaningful content" and "meaningful experience" need broad interpretation.—These simple examples help us to get farther and farther away from the practice of mere word-pronouncing as characteristic of reading. Not only are we dissatisfied with mere word-pronouncing but also with mere understanding of isolated words and phrases. What we need in the reading of continuous material, from the very first lessons, is the grasp of large meanings—the enjoyment of complex experiences which go far beyond the meanings of the individual words that relate them. Among the most characteristic of such experiences in childhood are those associated with nursery rimes. By introducing these early into the reading we are providing the child with meaningful content the total significance of which he readily grasps and the detailed words and phrases of which he sufficiently understands.

3. **Delightful content cultivates the desire to read.**—The reading attitude which we should endeavor to cultivate in children includes not only the tendency to grasp the meaning of printed material but also an active desire to read more and more. We want the pupil to feel that reading furnishes *delightful* experiences. We want to cultivate in him the tendency to take up books and read them with the same spontaneity and

zeal with which he enters into games, or with the same entranced delight with which he listens to a story that is being told. This furnishes another reason for the choice of interesting nursery rimes or such stories as "Goldilocks and the Three Bears." When we come to the primer-reading we shall see how thoroughly this idea is being carried out by filling the books with all the treasures of childhood's fairyland of myth and fable, adventure and romance.

4. **Get the whole thought or experience, then subdivide for reading practice.**—From the ideas expressed above—namely, that reading, from the very beginning, should present meaningful, interesting experiences to children—it follows naturally that the reading of any one selection should begin with its fundamental story features. After these have been adequately treated, then the content may be subdivided for a number of forms of reading practice. In Miss Hardy's lessons we find the following steps are taken in proceeding from the whole story to the study of individual words:

a. The pupils learn the whole nursery rime, or compose orally the whole story of Goldilocks in the exact words in which it is later to be read.

b. They tell the teacher exactly how to write the whole story on the board.

c. They read the story as a whole.

d. They learn to recognize individual lines and phrases.

e. They learn to recognize and remember the individual words.

The lessons which we have described show that much of the refined technique of teaching pre-primer reading depends upon the skillful carrying-out of the above processes in the order indicated. The prospective teacher of first-grade reading should study Miss Hardy's devices from this point of view, in great detail. For our more general purposes we may note briefly three features of her practice; namely, (1) the careful preparation before presenting the printed or written whole, (2) the ability

and training of pupils to recognize individual lines and phrases, (3) the necessity and value of familiarizing them with individual words.

Careful preparation before reading includes exact memorizing of first rimes or stories.—The exact memorizing of the rime or story before reading it is necessary in order that there may be no confusion when the reading begins. For example, when the children first recited "Jack and Jill" some of them said "*fetch* a pail of water" and others said "*get* a pail of water." By adopting one of these and discarding the other the chance for a confusing association was avoided. Moreover, in the case of children from illiterate or poor or nonliterary families there are sure to be some who are unfamiliar with the rime. The result of such careful preparation is that all the children have the full meaning and oral statement exactly in mind and are intensely interested in telling the teacher what to write. They are thus prepared to read it as an interesting, meaningful whole. As suggested on page 79, this constitutes one of the finest points in the expert teaching of the first lessons in reading and is in striking contrast with the child's first experiences in the old-fashioned teaching of reading, in which he haltingly attacked individual words and struggled through hours of meaningless drudgery.

Children may easily learn to recognize short phrases as wholes. An important reading attitude.—After the whole rime or story had been written or printed we found that Miss Hardy conducted a number of games in which the children handled, read, and recognized individual lines or phrases. The possibility of recognizing such units has long been a well-known fact to psychologists and is easily proved by the success of the children in doing it. The justification for making it the second step in the reading of the rime is the desire to train pupils to think in such large meaningful units while reading. This is another factor in establishing correct reading attitudes which we have emphasized throughout the discussion. In skilled continuous reading we do

not read by words alone, but rather in units of meaning of which the single words are merely the skeleton structure. While the beginning pupil must go through many years of practice before he can reach the general facility in phrase recognition that characterizes the skillful, trained reader, yet he can learn some phrases at the very beginning and, more important still, can make the modest beginnings of a reading attitude, or reading habit, which will prove of vital importance later. An interesting bit of detail in Miss Hardy's technique which illustrates her careful thought about the pupils' possibilities in phrase recognition is found in her writing of the first lines of "Jack and Jill" as described on page 84. When the children told her to write "Jack and Jill went up the hill," she skillfully broke it into two lines; thus:

Jack and Jill
Went up the hill.

It is obvious that the two phrase units which are thus secured are much better suited for recognition by beginning readers than the single long line in which they were combined.

Word recognition necessary and possible.—It is obvious, however, that we need to go further than phrase recognition and familiarize the pupil with individual words in order that he may use these as tools wherever they appear in his reading. For example, the child who has learned the word "Jack" in "Jack, be nimble" can use it as an aid in learning "Jack and Jill." Similarly, he can use other single words from one rime or story in reading later ones, such as "the" and "and." The possibility of learning such individual words "by sight" is another item ascertained by the psychologists at the same time that they found out about phrase recognition. The obvious success of children in doing it leaves no doubt of the possibility. During their pre-primer reading in Miss Hardy's room most of the children became thoroughly familiar with many *sight words* which they could recognize and use in reading new material.

Four principles summarized: correct attitudes, meaningful content, desire to read, analytical learning.—The four principles of teaching reading which we have discussed up to this point may be summarized as follows:

1. Pre-primer reading should initiate the correct reading attitude of trying to get meaningful and interesting experiences from printed or written material.

2. To cultivate this attitude, a content, such as action words and nursery rimes, should be selected which entices the pupils to focus their attention upon the meanings.

3. The attitude of *desiring to read* is also initiated by the intense interest which children attach to nursery rimes and stories.

4. In beginning the reading of any selection the whole thought or experience should receive first attention, and the material should then be subdivided into phrases and individual words for reading practice.

Phrased more concisely, these principles may be stated as follows. In pre-primer reading

1. Initiate correct reading attitudes.

2. Provide meaningful content.

3. Create a desire to read through delightful content.

4. In beginning the reading of any selection get the whole thought first and then subdivide for reading practice.

These points describe the method of approaching reading that is securing more and more general adoption in progressive elementary schools. We shall now consider certain further general principles of teaching as they apply to the teaching of reading and were illustrated in Miss Hardy's lessons.

5. **A single center of attention is secured by chart-reading and blackboard-reading.**—When a class has its first reading lessons from a book instead of the blackboard or a chart, it is difficult for the teacher to make sure that the children are all giving their attention to the line or phrase or word which is being discussed. On the other hand, with the material on the blackboard

or on a chart it is easy for the teacher or child to point to a certain portion of it and direct the attention of all interested pupils to the same item. This is one of the greatest advantages of using a blackboard in any kind of instruction, and every teacher should become skilled in blackboard writing and drawing and be resourceful in devising occasions to secure attention and clarify ideas by these means. In the complex activities which Miss Hardy directed it is obvious that much of the success depended upon the single objective center which secured from most of the pupils immediate, spontaneous, and rapt attention.

6. **Special equipment of charts and word cards improves technique.**—The use of a chart as the single objective center of attention in the first reading lessons is merely one example of the enormous improvements that are made possible in teaching by slight enrichments or modifications of the equipment. In the case of reading, other important items are the single lines on separate strips and the word cards. With the single lines on long strips Miss Hardy had some difficulty until she found the special rack into which they could be easily fitted. This rack is known as the Plymouth Chart[1] and consists of a long sheet of paper with horizontal ledges or grooves into which the strips can be easily inserted, even by the children, who naturally take delight in doing it. Most of the commercialized reading systems now furnish charts and word cards for their early lessons. In case a resourceful teacher desires to compose her own lessons, as Miss Hardy did, she may procure an outfit of large type, such as are used by merchants in printing signs, and sheets of manila tag board $23\frac{1}{2}$ by $28\frac{1}{2}$ inches. In view of the complex responsibilities which confront a beginning teacher in her first year of teaching, it would probably be well for the beginner to use some of the ready-made materials provided by those commercialized systems that are in accord with the principles of teaching reading described above.

[1] See footnote on page 81.

Bulletin board for incidental reading.—The beginner may supplement such ready-made material by a variety of homemade charts, some of which may be thumb-tacked on the bulletin board that constitutes another important feature of Miss Hardy's equipment. The surface of the bulletin board is best made of sheet cork. As noted on page 76, a "line for the day" makes attractive incidental reading matter to bulletin, as do also pictures cut from magazines and illustrating some of the activities of the class. To these pictures may be added attractive legends in large letters. In case a teacher does not possess a printing outfit, or time to use it, she may easily acquire skill in lettering with black crayon sufficient to dash off these legends very rapidly. Even in very poor circumstances a bulletin arrangement could be devised by using a corner of the blackboard and writing with chalk.

7. **Organize interesting activities, particularly games, with the reading materials.**—Some educators have believed that the desire to read described under principle 3, on page 94, is sufficient in itself to maintain the interest necessary for acquiring skill in reading. It takes only a little knowledge of the complexity and difficulty of the process of learning reading, however, to show us that very few children would acquire sufficient skill merely from this motive. Moreover, as discussed under principle 3, the desire to read is not a condition which we assume to exist in all pupils, but is to be a product of our teaching of reading in such a manner as to make all reading experiences delightful. Under principle 3 the opportunities for providing inherently delightful *material* for the pupils were stressed as a means to aid in creating the desire to read throughout life. Our present point is to emphasize interesting *activities* with this material, as a means of securing the attentive practice and repetition which are necessary to create automatic skill in reading.

Practice sugar-coated with games is the open sesame of childhood.—The fundamental basis of interesting practice activities in pre-primer reading is the pupils' intense interest in games.

The phrase "play a game" is the open-sesame charm which progressive teachers now use throughout the grades to secure rapt attention in all types of practice—in handwriting, spelling, reading, arithmetic, and language. Attentive, effective practice and learning can be secured with all kinds of educative materials provided they are sugar-coated with games which require concentrated attention upon the educative activities. Miss Hardy's lessons abounded in illustrations. The children played the game of "finding the line which says," gave close attention to the several lines as an essential part of the game, and learned to recognize the lines readily as the educative result. In the "moving-picture show" game of flashing cards the pupils were eagerly expectant and raptly attentive to each card as flashed, and learned to name the words rapidly and automatically as the educative result. The beginning teacher of first-grade reading should study carefully Miss Hardy's gameful devices for securing interest and attentive educative practice.

8. **Drill games require alertness and refined teaching technique.**—The effective conduct of drill games demands considerable automatic skill from the teacher. I was impressed with this fact while watching a practice teacher in the first grade. She had planned about six little games with word cards to consume about ten minutes. In order that she might keep her games in mind she had written in an obscure corner of the side board a list of them in very small letters, but sufficiently large for her to see. As a consequence she was able to keep her program in mind and maintain the zeal, or "pep," which is such a characteristic feature of active games. While she did fairly well in her teaching, I could feel the same contrast between her technique and Miss Hardy's that one feels between the movements of a beginner in skating or basket ball, on the one hand, and those of the smoothly moving professional in these activities, on the other hand.

9. **Careful attention to individual differences.** As a final principle to be considered in discussing pre-primer reading

we may note the necessity of adapting the teaching to the varied abilities of the pupils. On pages 89–90 we noted cases of two especially slow pupils—one who could not pick out the "last word" in a line, and another who failed to recognize the word "old" two minutes after he had been given thorough drill upon it. At the opposite extreme from such pupils we find children of five years of age who have a natural talent for learning to read and do so with little difficulty. In progressive first grades, during the pre-primer reading, the pupils are carefully studied and grouped and regrouped according to the abilities they exhibit in learning to read. For example, Miss Hardy's group which I had under observation was the brighter of two groups that had been given no previous instruction in reading. At the end of five weeks of pre-primer reading the slower group was about one week behind this brighter group. An even more advanced group consisted of children who had been instructed in reading in the kindergarten and had mastered some of the very elementary steps in beginning reading.

Skill from pre-primer reading makes book-reading easy. —In general the scientific studies of the maturing children's abilities, as well as the success of progressive, gameful methods of teaching pre-primer reading, demonstrate that most children at six years of age are undoubtedly mature enough to learn the art of easy reading. In the blackboard-reading and chart-reading these children experience little or no difficulty. When they come to book-reading the skill which they have acquired during the five weeks of pre-primer reading simplifies their difficulties enormously, so that with simple, familiar material they readily read page after page with delight. In the next section of the chapter we shall describe concretely Miss Hardy's first lessons with the primer and then discuss the additional principles of teaching reading which these book lessons illustrate. Before turning to the book-reading we shall summarize briefly the nine principles of teaching pre-primer reading which were presented in this section of the chapter.

Summary of rules for teaching pre-primer reading.—The nine rules for teaching pre-primer reading which we presented above may be briefly summarized as follows:

1. Initiate the correct reading attitude of trying to get meaningful and interesting experiences from printed material.
2. Provide meaningful content.
3. Create a desire to read by means of delightful and interesting content.
4. Proceed analytically from the whole story to phrases and then to individual words.
5. Secure a single objective center for the attention of all pupils by beginning with blackboard-reading or chart-reading.
6. Provide a special equipment of charts, cards, pictures, legends, and a bulletin board to facilitate reading practice.
7. Organize interesting activities to secure the attentive repetition necessary to give automatic skill in the elements of reading.
8. Master the technique of conducting drill games.
9. Group pupils according to their natural talent for, or their acquired ability in, reading and give special individual attention to the slow learners.

Section III. Beginning Book-Reading

A. *Sample Lessons*

Reading the first story. *Previous reading from chart. Easy transition.* The reading from charts, described on pages 77–91, continued in Miss Hardy's room during the first five weeks of school. The transition was then made to reading from a regular primer. This transition was rendered easy by having the last chart contain the first story of the primer in exactly the same form.

Children eager to possess and read the promised books.—Before beginning the first lesson with the books, Miss Hardy asked, "What was it I said we were going to have today?" "Books!"

cried the children. "Where are they?" and other exclamations followed in joyous tones. "Shall I get them?" queried Miss Hardy. "Yes! yes!" The teacher then brought out the pile of new books, and the class counted the children and the books and found one book too many. This was laid aside for an *absent* child.

Primers compared with pasted books and similar home copies.—Miss Hardy held up one copy and said: "See, this book has a name—just as we have names for the books *we* have been making. The name here is 'primer.' Here are also the names of the two people who wrote the stories for us, and here is the name of the person who made all the nice pictures in it." Many of the children recognized the book as one their older brothers or sisters had owned, and volunteered "We have a book at home just like that," or similar comments. "I shall give each child a book," said Miss Hardy. "Look through it quickly to see whether there is anything you know."

Children freely examine books and volunteer comments.—Upon receiving the books there were many exclamations: "Oh, there is the Gingerbread Boy!" "My pages are all stuck together!" "I can read this story!" etc.

Child's request for a certain story leads to table of contents.—One boy wanted to know whether a certain story was in the book. The teacher told him to look at the table of contents, and then asked all the children to look. Some of the children began to count the titles of the stories in the table of contents. About five minutes were consumed in permitting the children such random, spontaneous activity with the book.

Manila line-marker to each child; table of contents read.—Miss Hardy then brought the group to attention by saying: "Look up here, everyone. I am going to give you each a marker [showing a strip of durable manila paper about four inches long and one inch wide]. Place it under the name of the first story and then move it down as I read each name. . . . The first line says what?" The children gave this title as they had learned

it on the chart. "And what page?" The children answered correctly. The teacher then read each succeeding line, meanwhile watching the group closely and assisting slow pupils to move their markers to the appropriate lines.

Story of first selection told by children from its successive pictures.—"Now all turn to the first story," said the teacher. The children quickly recognized it as the one from the last chart. "Let's all look at the pictures together to see whether it is the same story we know. . . . What is happening in the first picture? . . . What do you see in the second picture?"—and so on until all the pictures had been examined and the story of each told by the children.

Story read rapidly. Markers moved carefully; line scanned silently; hands raised; chosen pupil reads line orally.—"Now turn back to the first page," directed Miss Hardy, "and we will read the story. . . . Put your markers under the title. Always keep your markers very still. Read the title. . . . 'Gideon.' . . . Now put your markers under the first line and get ready to tell what it says. Read silently. . . . John, read it to us. . . . Now the next line. Move your markers; study it; read silently. Then raise your hand to tell me what it says." As the children proceeded there were exclamations of "I know!" etc., and giggles of delight at recognizing the familiar lines that they had learned on the chart. Occasionally the class read a difficult line in unison. Several pages were easily read in a few minutes, Miss Hardy showing the children how the story continued from the bottom of a left-hand page to the top of a right-hand page, etc.

Each child becomes responsible for his own book.—At the end of the hour the teacher said: "Put your markers in the books and close them. Notice how clean your markers are. They will keep clean if you use them only for markers. Each child is *responsible* for his own book. Do you remember we learned yesterday what 'responsible' means? Put them in your desks carefully."

Preparation for the second story. *Dramatic telling by the teacher; second telling with new word cards; flash practice with cards.*—Reading the second story in the primer marked another step in advance, because this was done without preliminary reading of it on a chart. However, careful preparation was made for the new story by spending a whole reading period upon it before opening the books. This preparatory period contained three steps, as follows:

First, the teacher told the story in the exact words of the book, bringing out clearly its dramatic interest.

Second, she retold it and held up appropriate word cards, or phrases which were peculiarly characteristic of the story or repeated frequently in it.

Third, she then used these cards in a flash drill, closely relating them to the story by such remarks as "Don't you remember? This is the name of the second animal he met," etc.

Reading of the second story.—The *reading* of this second story on the next day, in the books, proceeded largely as in the case of the first story, by the following steps:

1. *Children tell the story from the pictures.*—About five minutes were spent in examining the pictures one after another and having the children tell the story from them. There was much free expression by the children at this stage, but the teacher, by skillful questioning, got them to use also many of the exact phrases as they would appear in the reading.

2. *Actual reading. Markers; units of one or more lines; teacher suggests content of line, rebukes careless pupil, aids slow pupil, commends good reading.*—After examining all the pictures the children returned to the first page of the story and, using their markers, read systematically through several pages. The following remarks by the teacher will add the local color of the situation: "Turn back to the first page. . . . Now, if everybody does everything just right we can read far today. . . . Read the first line silently; then one of you may read it to the group. It tells one of the characters in the story. . . . Now

see what the next sentence says. . . . The last sentence says what? It begins with 'So.' . . . Now we have two lines to read together. This is harder, isn't it? But we can do it all right if we use our markers. . . . The next line tells what he [referring to the hero of the story] does. . . . Are you ready, Allison? That's the fourth time you have dropped your book. When children drop their books four times that means they aren't ready for them. [Allison doesn't drop his book again.] The next three lines tell what the boy says. All read silently and then raise your hands. Now all move your markers back and we will read these three lines together. . . . Does some word puzzle you there, John? . . . Wait a minute, Franklin; it's this line, here [constantly watching around the compact little circle of readers to aid individual pupils who are in difficulties]. . . . Good for you, Mary, but I could hardly hear you. Read it again."

Coherent, rapid, meaningful reading. Drill relegated to separate period.—With such coherent group reading, aided by alert attention of the teacher to the needs of individual pupils, the story was rapidly completed. In order to make this type of rapid, meaningful reading the dominant activity of the reading period, most of the repetitional drill work on individual words had now been assigned to separate periods, which were called "word study." Before turning to a description of this activity we may discuss some of the general principles of teaching elementary reading which may be illustrated by the book lessons described above.

B. *Principles of Beginning Book-Reading*

1. **Secure continuous, coherent, rapid, meaningful reading.**—The largest factor in determining the nature of the first book-reading in Miss Hardy's lessons was probably the desire to continue the formation of correct reading attitudes and habits by facilitating continuous, coherent, rapid, meaningful reading

by the pupils. This purpose predominated throughout the pre-primer reading, and was easily realized in the early book lessons as a result of the skill acquired in the pre-primer reading. It is a revelation to the observer who is unfamiliar with progressive methods in teaching reading to see first-grade children, during their first three or four days with book-reading, rapidly complete some twenty pages of story material with interest, comprehension, fluency, and dispatch.

2. **Complexities of first book-reading simplified by first reading the same story on the chart.**—Reading in a book for the first time requires many complex mental and muscular activities of the pupil. These not only include mental attention to the forms of the words, phrases, and sentences but also involve difficulties in holding the book and especially in moving the eyes from word to word and from the end of one line to the beginning of the next line. If the pupil has had no preliminary reading practice it is futile to expect coherent, continuous, smooth reading under such complicated, trying conditions. On the other hand, if he has acquired some general facility in reading larger printed forms and, particularly, has read upon a chart the same story that he encounters in the book, the *mental* difficulties of coherent reading of this first story are almost entirely removed, leaving only the muscular adjustments of hand and eye to give difficulty.

3. **Continuous, thrilling, story material encourages page-after-page reading.**—In order to encourage continuous, coherent reading, the content of the first book lessons must be of a connected, continuous character. Hence, in our best recent primers we find real stories at the very beginning, each of which may extend over several pages. Each story has a definite plot which tends to carry the little reader along to the end. Great skill has been exhibited by a number of writers and publishers since about 1910 in composing and publishing such material. The stories are usually classics of childhood, such as "The Three Billy Goats Gruff," "Little Red Riding-hood," "Goldilocks,"

"The Little Red Hen," "The Gingerbread Boy," which have proved fascinating to children for generations. It is an interesting historical fact that while such stories had for many years been contained in reading books for the later grades, it was not until recently that they were introduced into the primers for the first lessons. This introduction came as the result of the acceptance of the general point of view in teaching reading which has been emphasized in this chapter; namely, developing attitudes and habits of securing meaningful, interesting experiences from the very beginning of reading.

4. **Repetitional phrases of certain child classics especially facilitate continuous, easy reading.**—Since the classic plots of children's stories were already at hand, the skill of the primer-writers consisted chiefly in phrasing the narrative so as to facilitate easy reading. Stories constructed on the general plan of "The House that Jack Built" were frequently chosen in order to secure repetition of words and phrases. Such a story usually has some unsolved problem that holds interest to the end and involves the meeting of one of the characters with the others in turn in such a manner as to call for frequent repetition of the whole story up to date. Thus there is a gradual addition of new material, introducing new difficulties, with frequent repetition of older phrases. This gives a happy balance of easy repetition and a few new words, and enables the children early to read with considerable fluency, provided the teacher is skilled in introducing the story so as to anticipate the vocabulary difficulties.

5. **Preparation for reading early stories includes dramatic telling, new words on cards, and telling from pictures.**—In preparing for the reading of the second story we saw how Miss Hardy introduced it by first telling it dramatically herself, and then retelling it with display of new words upon cards at appropriate places. These words were then restudied in connection with parts of the oral story. Finally, after the books were in hand the children told the story, before reading it, as they found

it represented in the pictures. This practice attaches special importance and significance to the pictures in the making of a primer. As a consequence high-grade artists are employed to draw them. The results are pictures full of story and action which the pupils delight in beholding.

6. **Rapidly read many stories in many books.**—When the story is finally read it is completed rapidly and the next story soon begun. This eliminates the old-fashioned practice of reading the same stories in a single primer over and over. Instead, after one primer is quickly finished another is begun, with the result that from ten to twenty books—including first readers—may be completed in one year. Since nearly all these books possess the same type of stories about animals and common things, the vocabulary demands may be quite small but the actual practice in fundamental reading habits very large. In order to make these fundamental reading habits the chief factor in the *reading* period, most of the repetitional, gameful drill with word cards is placed in a separate period. This separate drill activity, through automatizing the recognition of the sight words, greatly aids the activity of the reading period. By being separated, however, it is kept from detracting from the interpretative reading attitudes and the mental and muscular practice in continuous reading which predominate in the reading period.

7. **Muscular adjustments of eyes in finding and following the line aided by marker.**—The muscular practice referred to consists largely of practice in moving the eyes step by step along each line and then swinging them back to the beginning of the next line. If you will watch the eyes of a person who is reading you can easily see these jerks and pauses as the eyes move from left to right, and the long sweep back to the beginning of the next line. As we noticed in the chapter on handwriting, little children have special difficulties in making such fine motor adjustments. Even an adult reader has difficulty in some cases in finding with his eyes the beginning of the next line ; for example,

if he is reading a very wide page containing very long lines. An adult may have difficulty even in keeping his eyes on a single line in cases like reading a wide statistical table. In such cases he is very likely to use a ruler or piece of paper to mark the line and guide his eyes. The same device was used by Miss Hardy's children in the form of a strip of manila paper. This not only aids each child's eyes in finding and following the line but also aids the teacher in holding the attention of all the pupils upon the *same* line as she says, "Now move your markers to the third line," etc. It thus contributes to securing the continuous, coherent, rapid reading which we have emphasized in this section of the chapter.

Summary of rules for beginning book-reading.—We may now summarize our discussion of the teaching of the first lessons in book-reading in the following seven rules:

1. Secure continuous, coherent, rapid, meaningful reading.
2. Introduce the first story by preliminary reading of it on a chart in order to simplify the complexities of the first book-reading.
3. Use continuous, thrilling story material to encourage page-after-page reading.
4. Choose child classics with repetitional phrases to facilitate easy continuous reading.
5. Prepare for fluent reading of the first few stories by telling each story before reading it, by showing new words, and by having the pupils retell it from the pictures.
6. Rapidly read many stories in many books.
7. Have each pupil use a line-marker to aid the eyes and to secure attention of all the pupils to the same line.

Summary of the chapter to this point.—Up to this point in our chapter we have covered the following sections:

I. General picture of first-grade activities, including reading.
II. Pre-primer blackboard-reading and chart-reading.
   A. Sample lessons.
   B. Principles of teaching pre-primer reading.

III. Beginning book-reading.
A. Sample lessons.
B. Principles of teaching.

In all this discussion we have emphasized the teaching of reading as vitally related to children's experiences in the first grade with games, constructive activities, nursery rimes, and thrilling adventures found in the classic stories of childhood. All the technique employed in the teaching has tended to establish in the pupils the fundamental reading attitude and habit of trying to get meaningful, interesting experiences from printed material. At the same time, the child has been acquiring certain mechanical habits of moving his eyes and a vocabulary of sight words which he can use as tools in reading many stories containing only his familiar vocabulary. It is highly desirable, however, to extend the pupil's skill so that he can read material in which unfamiliar printed forms occur—in other words, to make him an independent reader of all types of material adapted to his age. For this reason, after the fundamental correct reading attitudes and habits had been well started, we found Miss Hardy introducing the third phase of first-grade reading, to which we shall now turn our attention.

Section IV. Independent Recognition of New Words; Phonetic Analysis

A. *Sample Lessons*

Third phase of beginning reading. Phonetic training for analyzing and recognizing new words.—The descriptions of the reading in Miss Hardy's room given on pages 74–111 carried us through the *first two* principal phases: (1) incidental reading and the reading of rimes and stories from charts; (2) beginning to read in the primer. At the beginning of the sixth week the *third* phase of reading was introduced; namely, phonetic training to enable the children to analyze and name new

words instead of having to be taught each word "by sight" by the teacher.[1] We shall describe Miss Hardy's introduction to the phonetic sounds and to the phonetic analysis of words and then take up a scientific study of the necessity and value of such training.

Some children interested in riming words and in similar beginnings.—Occasionally, before the beginning of the sixth week, some of the children gave evidence of their natural interest in words that sound alike, by voluntary remarks about words that rimed in the jingles they were studying, such as "Jill" and "hill." Some of them had noticed even the similar *beginnings* of words as Miss Hardy wrote them on the board. For example, the word "Save" had become very familiar as a note to the janitor. One day when the teacher wrote "Sam" a pupil said, "You begin that word just like 'Save.'" On another occasion a pupil suggested that "man" and "met" looked somewhat alike.

First phonetic lesson. *Learning the sound of "m" as the initial sound of four familiar words.*—The first sound which the children learned was that of the consonant *m*. It was taught during a portion of a word-study period. For the lesson Miss Hardy selected four words beginning with *m*, which the children had used in their reading and which they knew well by sight; namely, "met," "man," "make," "made." After some preliminaries the major steps in the teaching were the following:

1. Miss Hardy asked the children to listen very carefully as she pronounced the four words and then to tell her what part *sounded the same*. They readily said, "The first part."

[1] Among the possible values of phonetic instruction the following are suggested by E. D. Burbank, in the *Volta Review*, Vol. XXII, June, 1920:

I. In *word recognition*, making possible the recognition of words at sight.
II. In *pronunciation*, making correct sounds possible without reference to the dictionary.
III. In *articulation* and *enunciation*, giving distinctness and clearness to speech.
IV. In *spelling*, making it unnecessary to learn all words as sight words.
V. It prevents *provincialisms* and *dialects*, tends toward *standardized English*, and helps in the study of *foreign languages*.
VI. It may lead to *spelling reform*.

2. She then said, "Watch my lips as I say each word, so you can hear the first sound."

3. Then she brought out a small chart on which the words were printed. The words were pronounced and the first sound was connected with the sight of the first letter.

4. She wrote the words on the blackboard, and the children noted that they all began the same.

5. The children were then asked to think of other words which began with the same sound. One said, "Money." Another said, "Margery." A child who was not getting the point said, "Little."

6. The teacher said, "I am thinking of something the cow gives which begins with this sound." The children said, "Milk." Again, "I am thinking of a kind of pie we have at Thanksgiving." "Mince," they said. Similar questions with easy obvious answers were given until most of the children had the sound well in mind and connected with the beginnings of certain familiar words.

Second phonetic lesson. *Learning the sound of "s." Details of technique.*—Two days later, during a word-study period, the second sound was taught; namely, that of the consonant *s*. About seven minutes were consumed in the activities sketched below.

1. "The other day we discovered many words that begin with the same sound," said Miss Hardy. The children immediately began to hum the sound of *m* and volunteered "met, man," etc. as she held up the old chart.

2. "This morning we are going to have some more words which you know, and shall see with what sound they begin. Look at my lips and listen," said Miss Hardy, as she pronounced "seed," "so," "said," "some"—all familiar words from the reading lessons. The children immediately volunteered the hissing *s* sound. One child said, "That's the snake's sound." "How do you know?" asked Miss Hardy. "My mother told me."

3. A chart with the words printed on it was then studied, the teacher pointing to the beginning of each word as it was pronounced.

4. In response to the teacher's request "I want you to tell me a word that begins with this sound," the children gave "sore" and "say." The teacher added "Sunday," and said, "I am thinking of a boy's name that begins with this sound." "John," said one child. "No; 'Sam' is the word." "That's my uncle's name," volunteered one of the youngsters, who were nearly all ready now with additional words, such as "saw" and "salmon."

5. "Are you ready to see me write one of these words?" queried Miss Hardy. "I am going to write this first word [pointing to "seed"]. What does it say?"—and so on till all were written.

6. "Now watch me as I erase one of the words, and then tell me which one it was." The game element in this activity held the children's rapt attention. Finally all the words were erased.

7. The children were then taught to *write* the word "seed" at the blackboard (as described on page 17, in the chapter on handwriting).

8. Before dismissing the children the phonetic work of the period was then briefly recalled by Miss Hardy, with such remarks as: "What sound does seed begin with? . . . What was another word on that card? . . . Let's say them all through again. . . . How many of you think you will know that sound when you see a word in your books that begins with it?"

Puzzle as to teaching word families. *Need of experiments to show how children learn phonetic analysis.*—With similar detailed devices Miss Hardy proceeded to teach the sounds of other consonants. She then reached a stage that puzzles first-grade teachers of phonetics; namely, teaching the sounds and combinations of the vowels. The puzzling issue is whether (1) to attach the vowel to the final consonant of a short word (for example, "c at," thus giving the "at" family) or (2) to attach

the vowel to the initial consonant (thus, "ca t," which is urged by some experts in phonetics who object to the "family" idea). It is very likely that the evidence from the scientific study of phonetics justifies the latter practice.[1] The following account shows how Miss Hardy proceeded at this puzzling stage.

Vowel sounds. *Derived by cutting consonants from short words.*—The following table of words illustrates the material which the class used in the derivation of the short vowel sounds.

cat	met	bit	not	cut
bat	get	fit	got	but
rat	let	hit	hot	nut

When Miss Hardy wrote the first column of this material thus,

cat
bat
rat

the children easily recognized the words or quickly learned them. Having already learned the consonant sounds they easily gave each when the teacher covered up the other parts of the word. When she erased the final *t* and asked what was left, the children said *ca, ba, ra.* Then, when she erased the initial consonants of these syllables and asked what was left, the pupils gave the short sound of *a.* Similar procedure with the other columns, plus many additional short words, enabled the children themselves to discover the short sounds of the vowels *a, e, i, o, u,* and to gain skill in pronouncing short new words containing them. They were told that these vowel sounds were called *short.*

Long sounds learned; then rule determining whether long or short.—Later the children were told that sometimes the vowels are not called short but are called the opposite, whereupon they themselves supplied the word "long." From a study of words which they already knew, such as "late" and "rode," they be-

[1] See A M. Bell's "Phonetic Syllabification," *Volta Review,* March, 1915.

came familiar with the long sounds and learned that generally when a short word ends in *e* the latter is silent and the other vowel is long.

Many devices for concreteness, activity, interest, and drill.—The reader will readily understand that this later teaching was not carried on in the rapid, abstract manner that my brief description of it may suggest, but extended over many days, and at all stages was characterized by the concrete beginnings, the varied delightful activities of the pupils, the gameful, repetitional drill devices, which we found ever present in the earlier descriptions of Miss Hardy's lessons. Owing to the great length of this chapter, I must refrain from giving further details concerning the phonetic instruction and present briefly the general principles of training in the independent recognition of new words which Miss Hardy's lessons indicate.

B. *Principles of teaching Independent Recognition of New Words*

1. **Without phonetic training pupils become inaccurate, dependent readers.**—Complete proof of the necessity and value of phonetic training in the recognition of new words must be postponed until our next chapter, which will present the results of scientific studies of reading. We may anticipate, however, by stating that pupils who have not had training in independent word analysis prove to be, on the average, much more inaccurate in their reading than pupils who have had this training. Even from common observation, moreover, one can readily appreciate the desirability of training pupils so that they can rapidly and accurately decipher the new words which they meet in their everyday reading in and out of school, instead of merely recognizing the words which they have already learned by sight. In learning to read, the child must cultivate two somewhat conflicting sets of habits: (1) the habit of recognizing familiar words and phrases rapidly at sight and attending to their mean-

ings; (2) the habit of carefully analyzing the sounds of unfamiliar words to ascertain their pronunciation. It is important that both these habits and forms of skill be cultivated and that the child be capable of using each in its appropriate place without serious interference from the other.

2. **Teach in a separate period.**—In order to protect the sight-reading period from interfering attitudes, the phonetic instruction and drill are best given in a separate period. Such skill as is acquired in these separate periods will be used, however, where needed in the regular reading period. This will be illustrated later in the chapter in an account of a second-grade lesson.

3. **Derive the sounds by analyzing familiar words.**—In Miss Hardy's lessons we saw how the word drill upon certain words from the reading lessons was naturally and easily directed into a study of the initial sounds of the words. Some of the children had already of their own accord shown an interest in these sounds. The study of the latter represents the final step in the analytical learning, from wholes to parts, which we have described in earlier portions of the chapter. Such learning proceeds from the whole story to individual lines and phrases, then to drill on individual words, and, finally, to the sounds composing the words.

4. **Teach the easy sounds early.**—This rule is illustrated by the consonants *s* and *b*. The hissing sound of the *s* is easily separated from the words and pronounced by children, but the sound of *b* is more difficult, even for an adult, to learn to make. The ordinary result when an adult tries to pronounce *b* is really the sound of the phonogram *bu*.

5. **Teach the most useful sounds early.**—This rule is illustrated by the short and long sounds of the vowels. One authority estimates that in the Jones spelling list (discussed on page 53) 61 per cent of the phonetic syllables have short vowels and 10 per cent of the phonetic syllables have the vowels made long by final *e*. These frequencies justify us in

teaching early the short sounds of the vowels and quickly following these with words in which the vowels are made long by final *e*.

6. **Teach habits of analyzing words that will help in all later reading.**—In general this rule means that pupils will be given much practice in straightforward attack upon new, or unfamiliar words. One of the facts which will come out in our next chapter, on the scientific investigations of reading, is the very halting, confused methods of attacking new words which characterize many poor readers. Only sufficient practice in using methods of phonetic analysis will give mastery of them and lead to a confident, straightforward attack. For this reason some authorities argue that word families, which emphasize the final rimes in words, interfere with the desired practice of attacking a new word phonetically at the first syllable and proceeding systematically through it. Consequently they emphasize as desirable the habit of straightforward syllabication of new words as an aid in deciphering them.

7. **Use a well-organized scientific system of teaching phonetics.**—The few comments which we have made above suggest that the effective mastery of phonetic tools and analysis cannot be left to the haphazard efforts of inexperienced, unskilled teachers. Just as in the case of handwriting and spelling, we need ready-made, scientifically constructed systems. In phonetic teaching these will be derived from a study of (1) the phonetics of the common English words and (2) the methods and devices by which children most readily acquire skill in phonetic analysis. There are only a few systems in the market in which even the first factor—namely, the phonetics of the language—has been given careful consideration. As to the second factor,—namely, how children best learn phonetic analysis,—we need many more detailed investigations of children's experiences in learning particular sounds, phonetic combinations, and syllabication before we can perfect our ready-made systems for teaching phonetic analysis.

Conclusion of first-grade reading. *Correct reading habits plus skill in word analysis.*—This will conclude our discussion of first-grade reading as derived from the actual lessons observed in Miss Hardy's rooms. These lessons and our interpretative discussion have given us a notion of progressive modern methods of teaching reading to beginners in the first grade. We found the initial emphasis placed on forming the correct reading attitude—of trying to get meaningful, interesting experiences from printed material. For this purpose we found action words, nursery rimes, and continuous story material used to enable children early to take a delight in fluent reading. After the fundamental reading attitudes and habits had been correctly started we found systematic training for the independent phonetic analysis of new words being started at the beginning of the sixth week. Throughout the first year both of these types of practice are emphasized ; namely, (1) easy, fluent, delightful reading and (2) practice in phonetic analysis. In order to give the reader an idea of the results of such teaching, as well as the modifications that occur in the technique as the children gain more skill, we shall describe briefly a reading lesson observed in the fall in a second-grade room.

Section V. Second-Grade Lesson illustrating Achievements and Technique

Preparation. *Discussion of monkeys and crocodiles.*—The second-grade children assembled in their little chairs in the front of the room, just as the first-grade pupils had done. Miss Laura Lucas, their teacher, spent about two minutes in a preparatory discussion before turning to the story which they were to read. Among her questions and remarks, which were interspersed with answers from the children, were the following:

"How many of you, when you went to the zoo, saw the crocodiles?"

"How do they move, quickly or slowly?"

"Do they climb trees, like monkeys?" [Some of the children said that they do.]

"What kind of country do they live in—cold or hot?"

"Where do monkeys live—in what kind of country?"

"If a crocodile wanted to catch a monkey how would he do it?"

"I thought this morning you would like to read a story about how a crocodile tried to catch a monkey. The animals we are going to read about lived in a country called India [writing the word on the board]. They called each other by these names" [writing "Mr. Crocodile" and "Mr. Monkey"].

Silent reading. *Books presented to pupils.*—"When I give you your books, turn to page 85, read silently, and tell me if there are any words you do not know."

Much whispered vocalization indicates stage of development.—The children followed these directions and read the story silently with perfect attention. There was much whispered vocalization, showing that most of the children were not reading to themselves any faster than they could pronounce the words.

Assistance in phonetic analysis of new words given individually.—Those children that needed assistance advanced individually to the teacher, who was now seated in a low chair. As each child pointed out the words he did not know, Miss Lucas gave him help in such a low tone that the others were not distracted. As a rule she did not tell a child outright, but helped him to use his phonetic ability, saying, for example: "You have two vowels here, Clarence. Which one do you pronounce?"

Lack of phonetic training necessitates much help for one child.—Some of the children did not need any assistance. Most of them asked only once. One girl, however, requested help five times. After the lesson Miss Lucas told me that this child had entered from another school, where she had not had phonetic training; consequently she could not decipher the new words. She was being given special training to correct her deficiency.

Difficult words written on board in order of occurrence.—As the children asked for help on particular words, Miss Lucas made a memorandum of each on a card and then wrote them on the board in the order in which they occurred in the story, together

with other words or phrases to which she desired to call the children's attention. The list appeared as follows:

greedy	stupid
catch	angry
bank	narrow
fond of fruit	moved
swam along	crawled
surface	hello
started	afraid

Those who had finished the silent reading were told to study the words on the board.

Pupils relate the story. *Show successful silent reading.* —After all the pupils had finished reading the story silently, Miss Lucas said: "Put your finger in the place and close your books. Will someone tell us just how it happened that the crocodile wanted to catch the monkey?" A pupil gave his answer.

"What was his first plan to catch the monkey?" A boy described the plan.

"Tell us about the second plan, Damon."

The pupils talked very freely and related the story so clearly that it was obvious they had thoroughly grasped it in their silent reading.

Difficult words on board. *Explained if pupils request it.*— Miss Lucas then said: "Here are some of the words you asked for. If there is any word up here that any of you doesn't know, hold up your hand." She then explained certain of the words as pupils requested it.

Pupils pronounce and weave new words into oral story.—Miss Lucas then reviewed all the words by telling the story briefly and pointing to each word as it was worked into the story. Instead of pronouncing it herself, however, she had the pupils say it in unison. For example, the last word, "afraid," was inserted by the children as she said, "Then the monkey was so —— that he didn't go near the place any more."

Oral reading. *Rapid, connected, fluent reading to audience aided by teacher's suggestions.*—Since there were several visitors present, Miss Lucas then had the children read the story orally, in a rapid, continuous manner. She gave occasional suggestions such as the following:

"I'll ask Esther to start reading."
"Remember, now you are speaking to him, Esther."
"What did he answer, Frank?"
"Then how did the crocodile find the monkey?"
"What did the crocodile say, Robert?"
"Not quite so fast, Emerson, so that we can hear every word."
"Now, Constance, these people are talking back and forth. Read just as if you were talking—just as you would say it if you were the monkey."

Plan to represent characters of story and improve reading.—At the end of the reading there was a discussion arising out of the teacher's suggestion that next time they read the story again, with different children taking the parts of the characters in the story. Miss Lucas asked, "How might we make our reading better?" The pupils gave various answers, such as: "Get our words together"; "Read as people talk"; "Know the place."

New problem of rate of oral and silent reading.—It is scarcely necessary to enter into a detailed statement of the principles of teaching reading illustrated by this second-grade lesson. We find the same careful balance of (1) rapid grasp of meanings and (2) skill in independent analysis of new words which prevailed in the later weeks of the first-grade reading described earlier in the chapter. We find that the pupils were now real readers; they could take up a story adapted to their stage of development and get from its silent perusal the meanings and delight which it was intended to convey. We find, however, certain facts which need further discussion and interpretation; for example, though the children were reading silently, in the ordinary sense of the term, most of them were vocalizing quite audibly, showing that they were not reading any faster than they could

pronounce the words. The boy Emerson, however, could recognize words and read so rapidly silently that when he came to read orally he enunciated so fast that the audience could not easily understand him. He had become such a skilled, rapid, silent reader that Miss Lucas provided him with much supplementary reading to fill his time.

Scientific studies of reading presented in the next chapter. —Such instances raise important questions concerning the *rates* of oral and silent reading and the *relations* between oral and silent reading. These questions have been subjected to careful experimental study, from which important conclusions have been derived concerning methods of teaching silent reading, particularly beyond the second grade. In our next chapter we shall discuss these scientific studies preparatory to the final chapter on reading, which will deal with skillful silent reading.

Review for general principles and impressions of artistic teaching.—Meanwhile, if the reader is not already tired out by this long chapter, she may return and read the introductory summary on page 72, in order to grasp the larger principles of teaching which it has presented. At the same time she must remember that the chapter aims also to give the reader a general impression of the detailed technique that is involved in superior, artistic teaching. Consequently it is desirable to review also the accounts of Miss Hardy and Miss Lucas in action, so as to retain an impression of the delightful spirit and refined technique which prevailed in their rooms.

BIBLIOGRAPHICAL NOTES ON BEGINNING READING

Practical manuals.—The best concrete examples of how to teach beginning reading are found in the teachers' manuals that accompany series of school readers. The teacher who is interested should compare eight or ten of these inexpensive manuals to see how successfully they provide a proper balance between fascinating content reading and drill in the formal elements of word recognition.

Scientific investigations.—References to scientific studies of beginning reading will be found at the end of the following chapter on scientific investigations of reading.

CHAPTER VI

SCIENTIFIC INVESTIGATIONS OF READING

Main points of the chapter.—1. This chapter supplements Chapter V, "Beginning Reading," and Chapter XI, "Skillful Silent Reading."

2. Scientific investigations of reading fall into two classes: (1) laboratory experiments and (2) devising and using tests of the efficiency of methods of teaching reading.

3. Two lines of laboratory experimentation are here described: (1) experiments upon the flash recognition of words as wholes; (2) experimental studies of eye movements in reading.

4. Tests for oral and silent reading are described.

5. From the results of these scientific investigations four important conclusions are derived; namely:

a. That *silent* reading requires special practice.

b. That phonetic training is desirable to make accurate readers.

c. That the difficulties of poor readers can be scientifically diagnosed and remedial measures prescribed.

d. That skillful silent reading involves active, selective thinking closely related to acquiring ideas and solving problems.

Relation to science and art discussions of earlier chapters.—In the chapter on handwriting we noticed the large contribution made by laboratory investigations in determining methods of teaching. For example, we described the experiments which have proved that methods that endeavor to have children form the letters without finger movements are fallacious. We described also the development of scales to measure the quality of handwriting. Such scales make it possible, we noted, to measure exactly the success of any system of instruction in improving handwriting. We noted also the general characteristics of such scientific investigations; namely, that they are mathematically precise, objective, verifiable, expert, and impartial. In the chap-

ter on spelling we gave further examples of precise, objective, scientific studies and then distinguished between the *science* and the *art* of teaching. The latter, we said, refers to the actual skilled conduct of lessons.

Owing to the fact that this art of teaching has been more generally and highly perfected in teaching beginning reading than in any other subject, we presented in our first chapter on reading detailed pictures of the artistic teaching of beginning reading and made only casual reference to scientific investigations which justify the practices described. In the present chapter it is our purpose to describe a number of such investigations of reading and then, in a later chapter (namely, XI), to discuss at length skillful silent reading as a tool in acquiring ideas and meanings.

Sections of this chapter.—We shall consider the following features of the scientific investigations:

I. Laboratory studies of word recognition and of eye movements (p. 126).

II. Tests and scales for measuring oral and silent reading (p. 131).

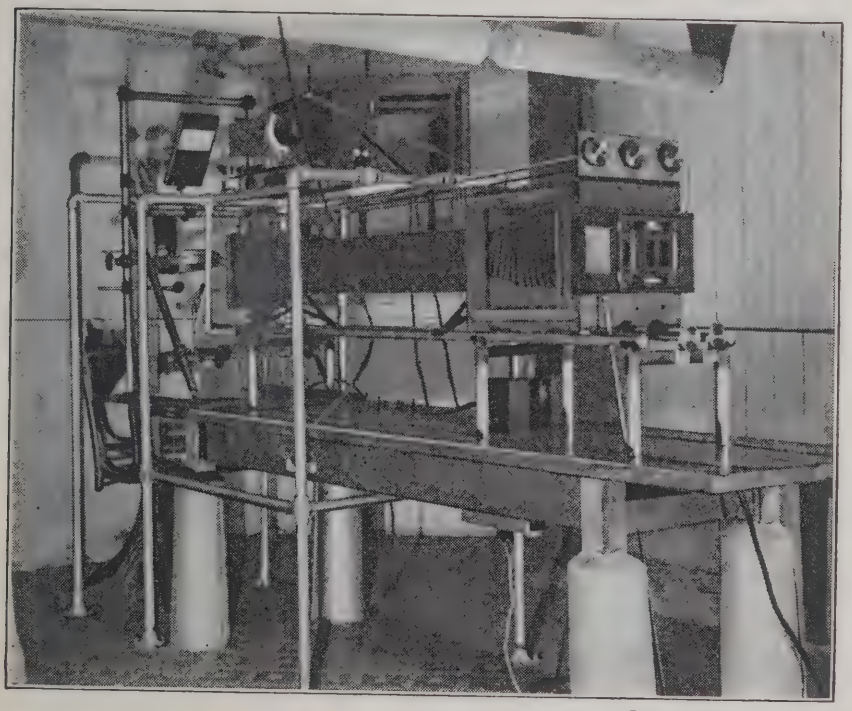
III. Conclusions from scientific investigations (p. 135).

These conclusions concern the relation between oral and silent reading, the value of phonetic instruction, the needs of pupils who read poorly, and the nature of reading as active, selective thinking.

Section I. Laboratory Studies of Word Recognition and of Eye Movements

Experiments upon word recognition. *Flash recognition.*—In our account of the first-grade lessons (on pages 86–90) we described methods of teaching children to recognize whole words at a glance, with no previous training in the alphabet or in spelling or phonetics. This practice is quite contrary to the old-fashioned idea that children had to know the letters before they could learn words. The obvious success of the children is

sufficient proof of the possibility of whole-word recognition, but certain psychological experiments help to confirm our belief in the importance of such practice. Some of the earliest experiments upon such flash recognition were conducted by exposing letters and words to view for a measured fraction of a second. It



Courtesy of G. T. Buswell

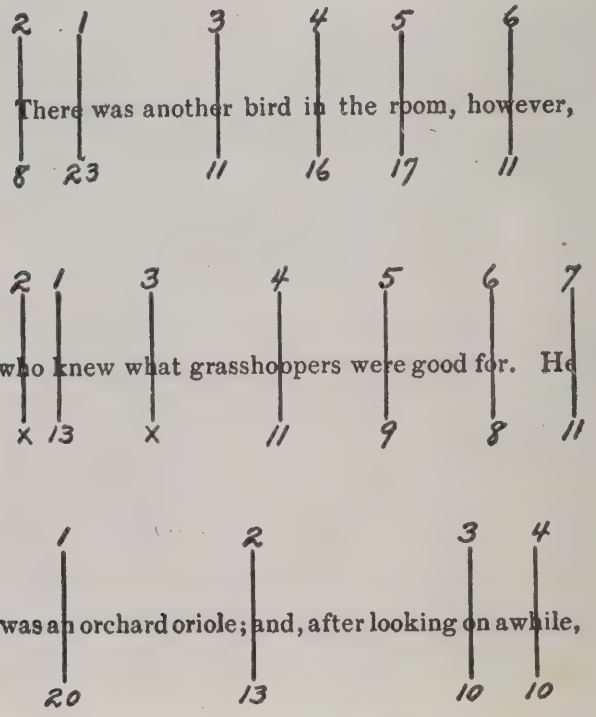
JUDD'S APPARATUS FOR PHOTOGRAPHING EYE MOVEMENTS

By means of the intricate reflection of a beam of light from the reader's eye, a line which tells the complete story of his eye movements is photographed on a motion-picture film

was found that a long, familiar word could be recognized at a glance, but if disordered letters were displayed it took much longer to make them out.

Span of recognition of poor readers and good readers.—Similar experiments were used later in diagnosing the differences between children in reading ability. Thus, at The University of Chicago special studies were made in 1916, of the "span of rec-

ognition" of poor readers and good readers. It was found that when six words were exposed for about one fifth of a second a good reader recognized on the average more than *five* of the words, while a poor reader recognized less than *two* words. These experiments explain the value of the flash drills in the


2 1 3 4 5 6
There was another bird in the room, however,
8 23 11 16 17 11
2 1 3 4 5 6 7
who knew what grasshoppers were good for. He
x 13 x 11 9 8 11
1 2 3 4
was an orchard oriole; and, after looking on awhile,
20 13 10 10

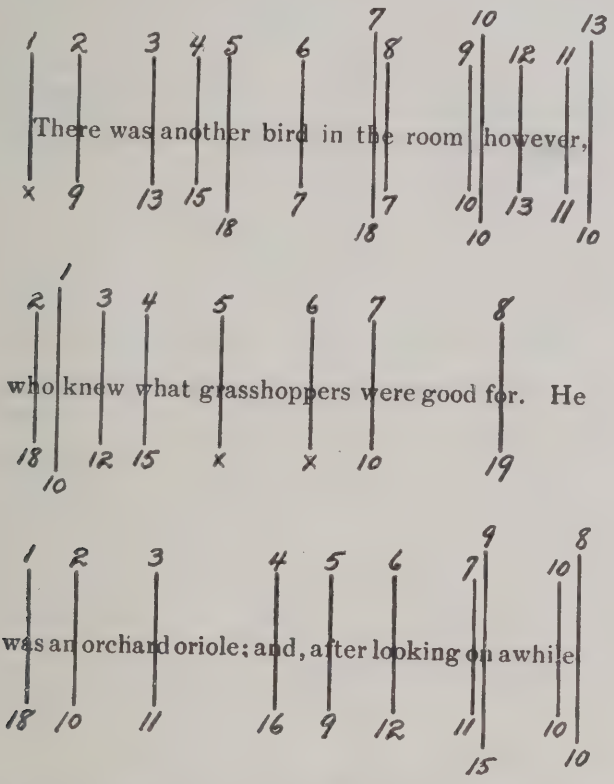
SILENT-READING PAUSES BY A RAPID READER IN THE FOURTH GRADE

Each vertical line indicates one pause. The top numeral indicates the number of the pause, and the bottom numeral its duration in fiftieths of a second

rapid recognition of words and phrases on cards, which we described (on page 86) as a means of speeding up pupils' recognition. Experiments in the Chicago laboratory showed that such practice is helpful as high as the fourth grade.

Experiments in investigating eye movements. *Huey's notable book.*—In describing the first lesson in book-reading (on pages 104–105) we noted that the children used a manila-paper line-marker to guide their eyes along the line. This practice illus-

trates the recognition by psychologists that eye movements are a fundamental factor in reading. Their early efforts to study these movements began with simple observations of the eyes of a person who is reading. If you will make such observations


There was another bird in the room however,
who knew what grasshoppers were good for. He
was an orchard oriole; and, after looking on awhile

SILENT-READING PAUSES BY A POOR READER IN THE FIFTH GRADE
From Judd's account of investigations at The University of Chicago

you will see that the eyes proceed by jerks and pauses as they read a line, and then make a long sweep back to the beginning of the next line. One of the pioneer investigators of these movements was E. B. Huey, who published in 1908 a book entitled "The Psychology and Pedagogy of Reading" (2). This book was widely read by persons interested in the teaching of reading, and is still an excellent source of information about the history, psychology, and teaching of reading.

Judd's elaborate studies.—The most elaborate photographic studies of eye movements have been made during recent years at The University of Chicago, under the direction of Professor C. H. Judd. The special apparatus used cost approximately six thousand dollars, and was purchased with a special research fund furnished by the General Education Board. A professor of education, on leave of absence from another institution, spent a whole year designing improved apparatus and making photographic records of the eye movements of many adults and children. A skilled mechanic spent many days in constructing the apparatus. An account of the results of these experiments, together with much other material, is given by Judd in a monograph entitled "Reading: its Nature and Development," published in 1918. (**3.**) During 1921 Professor Judd was granted fifteen thousand dollars from the Commonwealth Fund to carry further these experimental investigations.

Latest investigations.—As this book is being printed the results of the fifteen-thousand-dollar investigations mentioned above have just appeared in a series of monographs (**4, 15, 17**) by Professors C. H. Judd, G. T. Buswell, and W. S. Gray of The University of Chicago. Those by Judd and Buswell contain further elaborate studies of eye movements.

A poor reader may pause twice as often as a good reader.—In these experimental studies of eye movements the most striking contrasts appear between good and poor readers in (1) the *number* of pauses which they make in reading a line, and (2) the amount of *confused movement* that occurs. We cannot go into these differences here in detail, but may stop a moment to note the difference between a good reader and a poor one in the number of pauses, as illustrated in the figures on pages 128 and 129. Each vertical line indicates one pause. It will be noticed that the rapid fourth-grade reader paused only six times in reading the first line, while the poor fifth-grade reader paused thirteen times. Later we shall have occasion again to refer to the results of such experimental studies of eye movements.

Section II. Tests and Scales for measuring Oral and Silent Reading

Measuring reading is a complex matter.—Another type of investigation of reading has been the construction of scales for measuring the rate and quality of reading. In the chapter on handwriting we noted that the construction of a handwriting scale was comparatively easy, owing to the simplicity of the subject matter. In the case of reading, the opposite is true. The complete measurement of skill in reading is very difficult, owing to the complexity of the subject matter and of the interpretative reactions of the pupils. However, great progress has been made in devising scales for measuring reading ability. We shall note briefly a few out of the considerable number of scales that have been published.

Oral-reading tests and scales. *Gray's standardized paragraphs.*—One of the most widely used scales for measuring ability in *oral* reading is that devised by Professor W. S. Gray of The University of Chicago. (**9, 10, 11.**) In testing a pupil's ability in oral reading Gray has him read certain standard paragraphs aloud to an observer, who makes a written memorandum of the following factors in the reading:

1. The amount of time consumed.
2. The number of errors made.
   a. Gross mispronunciations.
   b. Minor mispronunciations.
   c. Omission of words.
   d. Insertion of words.
   e. Repetition of words or groups of words.
   f. Substitution of one word or group of words for another.

Sample paragraphs illustrating increasing difficulty.—The material which the pupils read in this test consists of a series of short paragraphs which gradually increase in difficulty. The first, the third, and a part of the fifth paragraph are reproduced on page 132.

1

A boy had a dog.
The dog ran into the woods.
The boy ran after the dog.
He wanted the dog to go home.
But the dog would not go home.
The little boy said,
"I cannot go home without my dog."
Then the boy began to cry.

3

Once there were a cat and a mouse. They lived in the same house. The cat bit off the mouse's tail. "Pray, puss," said the mouse, "give me my long tail again."

"No," said the cat, "I will not give you your tail till you bring me some milk."

5

One of the most interesting birds which ever lived in my bird-room was a blue jay named Jackie. He was full of business from morning till night, scarcely ever still. He had been stolen

You will easily note the progressive growth in difficulty. The twelfth and final paragraph, which is sufficiently difficult to test even high-school pupils, reads in part as follows:

> The hypotheses concerning physical phenomena formulated by the early philosophers proved to be inconsistent and in general not universally applicable.

Humorous illustration of a pupil's experience with the test.—The pupil who is being tested reads successive paragraphs until he makes seven errors in each of two paragraphs. The increasing difficulty for the pupil is illustrated by the case of a boy who had recently been subjected to several medical examinations. Finally, after getting started in school he encountered the oral-reading test. As he progressed through the paragraphs, and these became harder and harder, he stuttered and stammered, backed up, hesitated, and finally said to Mr. Gray, "I don't know what you're looking for, Mister, but whatever it is, I've sure got it."

Standard scores derived from wide use of the scale.—While devising and standardizing his tests (about 1915), Gray applied them extensively and carefully in eleven cities in Illinois. Later they were carefully used in surveys of reading in Cleveland, Grand Rapids, St. Louis, and Indianapolis. From the results of thus testing thousands of children in oral reading of the same paragraphs, Gray has derived a series of standard scores, or achievements, which we can use in evaluating the success of the teaching of oral reading in any room, school, or system of schools. At the same time we can use the tests and scores in diagnosing the needs of particular pupils and determining necessary changes in our methods of teaching reading. We shall refer to some of the results of such studies of methods of teaching after noting examples of tests for measuring *silent* reading.

Silent-reading tests and scales. *Courtis tests.*—One of the best-known and most convenient silent-reading tests is that of S. A. Courtis, the well-known educational investigator. (7.)

This test is given to a class as a whole, which renders it more easy to administer than an oral-reading test, which must necessarily be given individually. In the Courtis test each child is given a little pamphlet containing a story and directions for reading it. In the first part of the test, upon a signal from the examiner, the pupils begin to read. At the end of each half minute the examiner says "Mark," whereupon the pupil draws a circle around the last word and goes on reading. From such records the *rates* of silent reading can be calculated.

Quality of pupil's studious comprehension tested by questions.—The second part of the Courtis test measures the *quality* of the pupil's silent reading by having him write the answers to a number of printed questions about the story. The material for this part of the test is printed in the back of the pamphlet and is divided into paragraphs followed by questions, as indicated in the following sample:

When the day of the party came, Daddy planted a Maypole and Mother tied it with gay-colored ribbons. There were to be games and dances on the grass and a delicious supper, with a basket full of flowers for every child.

1. Were the children to have anything to eat? _____
2. Were they going to play on the grass? _____
3. Were they going into the house to dance? _____
4. Were the baskets to be full of flowers? _____
5. Was it Daddy who tied the ribbons to the pole? _____

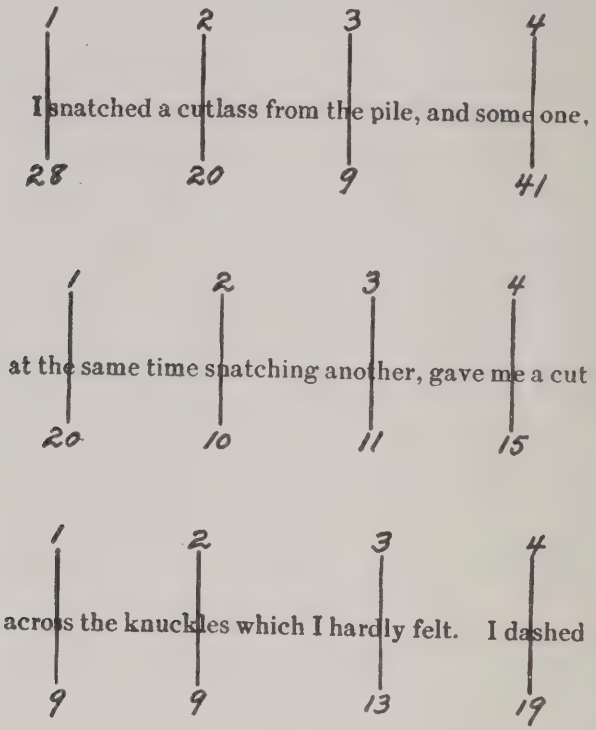
Rapidity and quality of comprehension are both measured.—There are some fourteen paragraphs similar to the above in the story and a total of about seventy questions. The time is limited so that even the best pupil will not complete the test, but all may do several minutes of work, thus giving them time really to get into the swing of the task. The directions say: "*Do not guess at the answers.* If you do not remember what the story said, read the paragraph just above the questions again and again until you find the right answer." Thus the test considers both the rapidity and the accuracy of the pupil's comprehension.

Great variety of silent-reading tests. From word recognition to solving problems.—A somewhat similar test was published by Professor E. L. Thorndike, of Columbia University, in 1914 and the results were used by him in a number of articles in which he discussed the mental processes of pupils in understanding or misunderstanding sentences. (**13–14.**) Numerous other tests have been devised to measure various phases of reading, ranging from the mere ability to recognize words to the ability to solve puzzle problems expressed in words. Since 1920 various investigations have been conducted to determine the value and reliability of the different kinds of test of ability in reading. For further discussion of these investigations the reader is referred to references 7 and 8 at the end of this chapter. It will be more to our purpose to turn to a brief study of the ideas concerning methods of teaching reading which have been derived from both the experimental laboratory studies of reading described earlier in the chapter and the use of tests and scales which we have just been considering.

Section III. Conclusions from Scientific Investigations

Differences in oral and silent reading. *Silent rate usually exceeds oral after fourth grade.*—One of the important facts that early appeared from the use of standard tests of the reading of school children was that the rate of silent reading becomes more rapid than the rate of oral reading somewhere in the middle grades. We had one example of this fact in the second-grade lesson described on page 124, in which one bright boy had already reached the place where he read second-grade material more rapidly than the pace of good oral reading. In the case of most pupils this change comes in the third or fourth grade, depending upon the natural talent of the pupils and the methods used in teaching reading. After this point in the grades most pupils will read more rapidly silently than orally. A pupil's rate in careful *oral* reading will never exceed that of clear pronuncia-

tion, whereas his *silent* rate may advance far beyond this, becoming as high as three hundred and seventy-five words per minute when he reaches high school if he is an especially skilled reader. This means that he could read a page of the length of


1 2 3 4
I snatched a cutlass from the pile, and some one,
28 20 9 41
1 2 3 4
at the same time snatching another, gave me a cut
20 10 11 15
1 2 3 4
across the knuckles which I hardly felt. I dashed
9 9 13 19

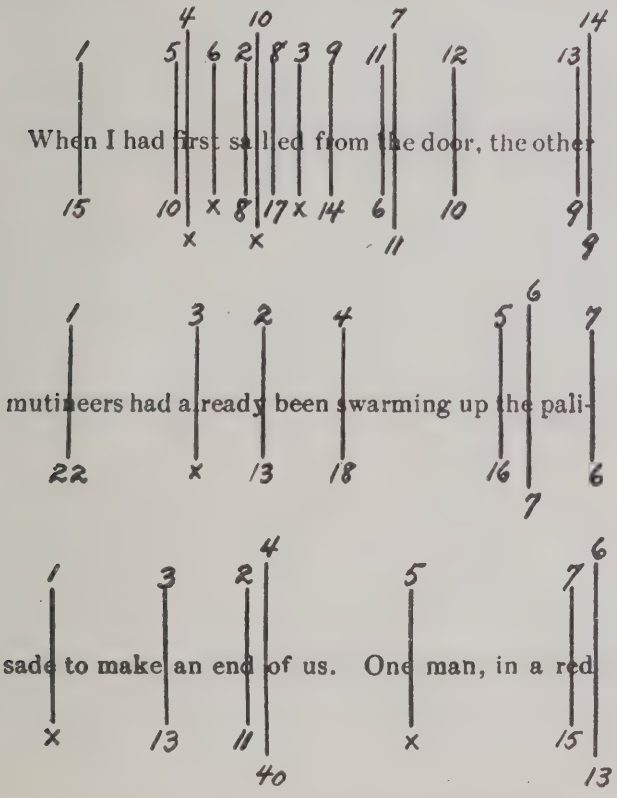
SILENT-READING PAUSES BY A GOOD READER IN THE SEVENTH GRADE

Compare the oral-reading record on the opposite page

page 134, if it contained ordinary story material, in about one minute. To read it orally, at the ordinary pace, would take about two minutes.

Photographs show differences in eye movements in silent and oral reading.—One of the most objective and impressive demonstrations of the differences between a pupil's reading processes in silent reading and those in oral reading is found in the photographic records of eye movements. A clear case is shown in the

accompanying diagrams, which represent the eye pauses of the same pupil in silent and in oral reading. In the silent-reading record it appears that his eyes in reading each line made only


When I had first sallied from the door, the other
mutineers had already been swarming up the pali-
sade to make an end of us. One man, in a red

ORAL-READING PAUSES BY THE PUPIL WHOSE RECORD FOR SILENT READING IS SHOWN ON THE OPPOSITE PAGE

From Judd's "Reading: its Nature and Development"

four stops and at very regular spacial intervals; in the oral-reading record it appears that his eyes made from seven to fourteen stops in a line and at quite irregular intervals.

Hence overemphasis on oral reading may interfere with silent. —Thus we have derived from the scientific investigations two important lines of evidence on the relation of oral and of silent reading. The school tests show us where, on the average, the

silent rate begins to exceed the oral, and the photographic records of eye movements show how many more eye pauses occur in oral as compared with silent reading. From such evidence investigators conclude that the common emphasis upon oral reading above the third grade seriously interferes with the development of habits of skilled silent reading, and that it would be better to give various types of practice especially suited to develop skill in silent reading. In a later chapter on silent reading we shall present an extensive analysis of the needs of pupils who are acquiring such skill, and shall describe some of the practice devices used by skilled teachers of silent reading.

Necessity of phonetic training shown by investigations.— Another useful point that has been determined by the scientific investigations is the necessity of special training in the accurate recognition of new words, such as the phonetic training described in the preceding chapter. This fact appeared most clearly in Gray's survey of the results of teaching reading in one of the Middle West cities that maintains an excellent school system. Like several progressive schools of recent years, this system tended to neglect the so-called "formal" drill in word recognition. The fallacy of this neglect appeared when their results in reading were compared with those from other cities as measured by Gray's tests. In speaking of the situation in this particular city, Gray says:

> The results of the oral-reading tests showed that the pupils . . . ranked low in accuracy of pronunciation and in ability to attack new words. Classroom observations revealed similar weaknesses. . . . Many teachers had no [phonetic] devices [for helping pupils] and some were almost helpless, if not inaccurate, in their attempts to aid the pupil. Several principals stated that many teachers had little or no knowledge or training in regard to the use of phonetics. As evidenced by the facts cited above, there is real need of giving the problem of word analysis serious consideration in [this city]. Uniform methods of developing independence and accuracy in pronunciation should be considered, and teachers should be trained to make effective use of the adopted method. (**11**: 511–512)

Diagnosis of needs of poor readers by means of scientific devices.—The scientific devices for measuring reading ability which we described earlier in the chapter aid not only in the broad study of the average efficiency of reading instruction as illustrated in the above quotation, but are also especially useful in diagnosing the needs of pupils who are having special difficulties with reading. A number of excellent investigations of types of poor readers have been published, and some are mentioned at the end of this chapter. Below is a paraphrase of Judd's description of the reading defects of a poor fifth-grade reader (whom we shall call Grace) and the methods used to improve her reading. She had attended three different schools up to the time of her entering The University of Chicago Elementary School.

Dislikes silent reading.—Grace had been included in the tests . . . and proved to be a slow, inefficient reader. . . . She could not unravel the intricacies of the printed lines which proved easy to many of her classmates. . . . The school physician's record showed that she was a normal, healthy child with no special defects in eyes, ears, or throat. . . . Silent reading was particularly distasteful to her. She always settled down to it reluctantly. . . . From the home came the same story: "She has never read a story to herself, though she has several attractively illustrated children's books. Frequently, however, after eagerly studying the illustrations in a new book, she begs to have the story read to her, saying: 'You read it, mother. I can't understand it very well when I read it myself.'"

Tests reveal special difficulties.—The various tests given to Grace revealed some interesting facts. . . . The pronunciation of unfamiliar words seemed most difficult. She usually hesitated a moment before attacking a new word and then whispered to herself the spelling of the word, letter by letter. . . . Her rate in silent reading showed an unusual condition. It was slower than the oral rate. . . . From the data it was evident that her difficulties in reading were due to a lack of familiarity with printed words and to a lack of method of working out new or unknown word forms.

Eighteen weeks of special training.—In an effort to help her to overcome this handicap she was given various types of training dur-

ing eighteen weeks; namely, six weeks devoted to a great deal of oral reading, six weeks on drills in phonetics and in word analysis, and six weeks including a great deal of silent reading.

Later tests and improvement.—The silent-reading and oral-reading tests which had been given before this special practice began were repeated. . . . Grace now showed by her whole manner that she felt competent to do the tests. She wrote her answers with a precision and directness not at all characteristic of her earlier tests. . . . Her teachers reported that she now read with [considerable] ease and expression. . . . She seemed to enjoy reading silently. . . . Frequently she expressed a preference for reading a passage silently, saying, "I can do it faster that way." (**3**: 82–90)

Individual cases reveal need of balanced training plus individual attention.—An account of the treatment of some seventy poor readers and of extensive remedial teaching in a large city is reported by W. S. Gray in his monograph "Remedial Cases in Reading: their Diagnosis and Treatment" (**15**), which should be read in order to get some comprehension of the complexity of reading habits and processes and of the varied needs of poor readers. One pupil may read poorly because of absence during certain crucial months in the primary grades when the fundamentals of phonetics were being taught. Another may read poorly because he has had too much phonetic training and has never acquired correct habits and skill in interpreting the meanings of printed words. However, in spite of this variety of needs and processes, the difficulties of poor readers may be roughly classified into certain types, which a well-organized system of teaching reading will provide for by balancing the mechanical and interpretative features of the training in some such way as we outlined in the preceding chapter. When an individual pupil, because of absence or mental peculiarity, fails to profit from such balanced training he should be carefully tested and given appropriate individual training.

Investigators emphasize reading as a tool in acquiring ideas.—Up to this point in our discussion of the results of scientific investigations of reading we have considered the following

matters: (1) the differences between oral and silent reading, and the consequent need of specific training in silent reading; (2) the defects of systems that neglect phonetic training, and the consequent need of such training; (3) the diagnosing of the needs of especially poor readers by standard tests, and the means of correcting special defects. Finally, we may note how investigators of reading processes have come more and more to consider reading as a tool to be used in acquiring ideas and as a process involving careful, controlled thinking instead of mere passive perusal of a page.

Thorndike discusses processes of understanding sentences.— Professor Thorndike's tests of the understanding of sentences, as we noted on page 135, have led him to give special emphasis to the idea that good reading involves good thinking. From the returns from his tests he illustrates at great length the failure of poor readers to think carefully when reading a paragraph to obtain answers to certain questions. For example, consider the following test, in which a pupil would have to do somewhat the same type of thinking as he would in studying paragraphs in history or geography to ascertain particular facts. The test reads in part as follows:

Read this and then write the answers to 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10. Read it again as often as you need to.

It may seem at first thought that every boy and girl who goes to school ought to do all the work that the teacher wishes done. But sometimes other duties prevent even the best boy or girl from doing so. If a boy's (or girl's) father died and he had to work afternoons and evenings to earn money to help his mother, such might be the case. A good girl might let her lessons go undone in order to help her mother by taking care of the baby.

1. Must a good boy always do all his school work? _____
2. Will a good girl sometimes fail to get all her lessons? _____
3. What are some conditions that make even the best boy leave school work unfinished? _____

Other questions complete the test. (**14**: 105)

Reading is active, selective thinking.—In commenting on the types of errors that pupils make in such a reading test, Thorndike says:

> There seems to be a strong tendency in human nature to accept as satisfactory whatever ideas arise quickly—to trust any course of thought that runs along fluently. If the question makes the pupil think of *anything*, or if he finds *anything* in the paragraph that seems to belong with the question, he accepts it without criticism. . . . This fishing around in the text for something to use, and its use without reorganization, [present] perhaps the most debased form of selective thinking which school work shows. . . . The extent to which it prevails amongst pupils in even the higher grades shows the need for practice in reading and study. I am inclined to think, however, that the cure for it is not to repress the verbatim use of wrong, irrelevant, or roughly appropriate quotations, but to permit it *plus careful examination of the quotations to see if they really do meet the need.* . . . The comprehension of textbooks . . . [is] far above the level of merely "passive," or "receptive," work. When the reading of textbooks . . . is really passive, or receptive, comprehension will rarely result. . . . "To read" means "to think," as truly as does "to evaluate" or "to invent" or "to demonstrate" or "to verify." (**14**: 107–114)

Conclusion of first two chapters on reading.—This quotation typifies the tendency among investigators to think of reading not primarily in terms of the special "reading period" but also in terms of what the pupils do with their textbooks and supplementary books in every subject. Thus regarded, reading becomes an important factor in the processes of acquiring ideas and solving problems. Hence before we can complete our discussion of reading (in a chapter entitled "Skillful Silent Reading") it is desirable for us to get clearly in mind the opportunities and methods for acquiring ideas and solving problems that prevail in a modern progressive elementary school. This we shall undertake in Part II of the text. First, however, we must discuss the last of the "four elementary skills" included in Part I; namely, skill in arithmetical calculation.

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5. STARCH, D. *Educational Psychology.* (The Macmillan Company, 1919.) Chap. xvi, pp. 261–296.

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CHAPTER VII

SKILL IN ARITHMETICAL CALCULATION

Main points of the chapter.—1. The arithmetical problems of everyday life have been canvassed, in order to determine the arithmetical skills that pupils should acquire.

2. Even kindergarten children may be introduced to the simplest of these skills, while pupils in the upper grades may well undertake some calculations formerly reserved for high schools.

3. In the actual teaching of any arithmetic topic the first step is to give pupils clear ideas of the social realities and of the arithmetical process by means of (1) clear-cut examples, (2) thoughtful scrutiny by the pupils, and (3) varied applications.

4. To attain automatic accuracy and speed scientifically organized drill systems should be followed.

5. In order to ascertain each pupil's needs, attainments, and progress, and to measure the success of the teaching, standardized tests should be given periodically.

6. In choosing a good textbook standards derived from the above points may be applied in evaluating each book.

The last of the "four elementary skills."—This chapter will conclude Part I of the text. In this part we have included the acquiring of skill in four comparatively elementary types of learning; namely, handwriting, spelling, beginning reading, and arithmetical calculation. In all these we have emphasized the matter of attaining automatic skill. This gives a certain amount of unity to this part and aids the reader in grasping the book as a whole.

General lines of educational thought illustrated.—The preceding chapters have familiarized the reader with certain general methods of thinking about each skill, such as determining its value in social life, its place in each stage of child life, the

best means of introducing it, and the need of using scientifically organized drill systems and standard tests. Similar lines of thought will appear in our discussion of the teaching of arithmetical calculation as illustrated in the titles of the divisions of the discussion.

Sections of the chapter.—The titles for the sections of the chapter are as follows:

I. Determining the important arithmetical skills from social needs (p. 146).
II. Adapting problems to pupil maturity (p. 148).
III. Giving pupils clear arithmetical ideas (p. 151).
IV. Using scientific drill systems (p. 156).
V. Measuring the arithmetical skills attained (p. 163).
VI. Selecting a good arithmetic textbook (p. 167).

Section I. Determining the Important Arithmetical Skills from Social Needs

Social needs ascertained from problems of everyday life.—We noticed in our chapters on handwriting and spelling how the school's task had been greatly simplified by ascertaining how well an ordinary person needs to write in social life and what words he commonly needs to spell there. Similarly, the teaching of arithmetical calculation has been simplified in recent years by dropping from the course of study those topics that pupils will seldom encounter in daily life and by emphasizing those topics and arithmetical operations that are in common use. Several scientific investigations have been made to ascertain what topics and operations are most common in the problems of business, industry, and the home.

Problems from parents listed.—One of these investigations, conducted by Professor G. M. Wilson, secured its data by having upper-grade children in Iowa collect through a period of two weeks the problems solved by their fathers and mothers. Thus about five thousand problems were secured from house-

keepers, farmers, merchants, mechanics, contractors, etc. When these problems of every day had been classified it appeared that buying and selling furnish most of the problems of these citizens and that keeping accounts and percentage furnish many more problems than do certain other activities. Most of the examples involved only one arithmetical process, and most of the numbers, figures, or quantities used contained less than four places. These facts suggest the large value of practice with simpler problems in school than those frequently found in the textbooks. (6: 137)

Salesmanship problems.—In order to determine what kinds of arithmetic are needed by clerks and customers, Professor C. Woody analyzed problems from a large hardware store, a department store, and a grocery store. Some of his conclusions were similar to those given above. Others, however, concerning salesmanship problems were these: (1) Multiplication and addition are used more than division and subtraction. (2) Mental calculations are so commonly used by customers and are so frequent in certain types of stores that there is great social need for teaching much *mental arithmetic* in the schools.

Problems from practical corporation schools investigated.—In order to ascertain what mathematical processes should be included in ninth-grade mathematics, Professor H. O. Rugg and his associates examined the problems found in the courses of study in practical mathematics offered by corporation schools, such as those maintained by the manufacturers of automobiles, electrical appliances, rubber, etc. From these results Rugg concluded that such a course should include, on the basis of social worth:

> Training in (*a*) the use of letters to represent numbers; (*b*) the use of simple equations; (*c*) the construction and evaluation of formulas; (*d*) the finding of unknown distances by means of (1) scale drawings, (2) the principle of similarity in triangles, (3) the use of the properties of the right triangle; (*e*) the preparation and use of statistical tables and graphs to represent and compare quantities. (5)

Obsolete topics dropped and current topics emphasized.—From such investigations the makers of textbooks and courses of study in elementary mathematics have derived a scientific basis for dropping many unimportant topics and problems and for emphasizing mathematical processes that are in frequent daily use.

Supplement with quantitative insight into civilization.—Since this chapter is concerned merely with computational skill in arithmetic, such investigations of the actual problems encountered in various common, practical pursuits outline correctly the processes to be emphasized in giving such skill. There is another large use of training in arithmetical thinking, however, which we should not overlook, and that is in the reading of accounts of financial conditions, railroad operations, taxation issues, crop reports, baseball scores, etc. in newspapers and magazines. For this purpose pupils need to be trained in doing quantitative thinking that is much broader in scope than is usually required in the daily personal uses of arithmetical calculation.

Section II. Adapting Problems to Pupil Maturity

Distribution according to pupils' ability to comprehend.—Having determined what types of arithmetical topics are useful in everyday life, our second question concerns the distribution of these topics through the grades according to the pupils' abilities to comprehend them.

First-grade possibilities. *Do not judge by the exceptionally deficient.*—We immediately encounter considerable disagreement concerning the age at which pupils should begin the study of number. For example, in one school near Chicago no number work is permitted in the first grade, and a supervisor seriously reprimanded a first-grade teacher for asking the children to count some objects in the room. On the other hand, in a neighboring school even the kindergarten children count and

measure and use numbers frequently. It takes little observation of such teaching to prove that many young children of average intelligence can acquire correct number ideas and use these in their work and play. To be sure, there will frequently be found in the primary grades some children who have special difficulty with arithmetic, just as some have special difficulty with music. However, we should not base our general practice upon such exceptional cases.

Kindergarten practice with numbers. *Activities and attainments.*—An example of the arithmetic practice that may profitably be given to many kindergarten children is contained in the following account of the number work in that grade in The University of Chicago Elementary School:

Counting.—There are frequent occasions during the day when counting becomes necessary. A certain number of children may be needed for a game, or a pattern for a string of beads or seeds requires the grouping of the right number of units. The children even learn to count to thirty by keeping track of the number of pupils present each day.

The games sometimes call for the grouping of children in twos, threes, and fours. For example, one child starts the skipping, then chooses a partner, and these two in turn choose other partners, the children spontaneously keeping count of the increasing numbers up to eight. Some games require a small number of children. Any child may be asked to choose the number by stepping out from the group and calling the names of four or five children. If he chooses too few or too many, he is helped by the group to correct the error.

In using the building blocks simple problems may be presented which involve the use of numbers. For example, the children may be asked to make the foundation of a house four blocks long and three blocks wide, or to make a table four blocks long with enough chairs for six people.

Addition and subtraction of number groups within six.—There are a few simple games which have for their main object the teaching of addition and subtraction of small numbers. For example, six objects (balls, blocks, or sticks) are laid on the table. The children count them. Then one child is asked to close his eyes, and another

takes away one or more of the objects. The first child must tell the number which have disappeared. The game may be varied by adding objects to an original group of two or three etc.

Division of material into halves or quarters.—Some of the building blocks are divided into halves and quarters. The children become familiar with these parts in playing with the material. In putting it away they must fit the proper pieces together in order to get the blocks back into the box. In playing with the blocks the terms "halves" and "quarters" are used in connection with the objects.

In constructing paper furniture or boxes, baskets, and other forms, it is often necessary to divide the paper into halves and quarters, which the children learn to do through experimentation or from direction.

Recognition of objects having geometrical form.—The toys and building blocks are in the form of spheres and cylinders, cubes and other rectangular prisms. The paper used in construction is in the form of oblongs, squares, circles, or triangles. No special point is made of teaching these forms, but the children acquire the terms simply as a part of their vocabulary.

In comparing the relative sizes of the blocks, paper, sticks, etc. the children learn to make intelligent use of the terms "large and small," "wide and narrow," "long and short."

Attainments.—In the course of a year many of the children should acquire the following abilities:

To count from one to thirty.

To recognize groups of objects up to five or six.

To add and subtract number groups within six.

To recognize halves and quarters, as these divisions appear in material, and to divide material which they handle into halves and quarters.

To recognize and name the following geometric forms: sphere, cylinder, cube, circle, square, oblong, triangle.

Upper grades. *Simple algebraical processes comprehended by many pupils.*—If, now, we turn our attention from the primary grades to the upper grades and ask what kind of mathematics is adapted to the pupils there, we find a similar movement; namely, to bring in topics and processes that were once considered suitable only for pupils in higher grades. One of these

processes is the use of the equation. This is easily introduced in connection with the area of a rectangle when written thus :

area = base times the height,
or area = base × height,
or $a = b \times h$.

Percentage formulas may also be conveniently expressed as equations. In solving problems by substituting the numerical values for the letters in these formulas, the pupils secure practice in substitution. Thus we see how three simple processes —namely, (1) the use of letters to represent numbers, (2) the use of simple equations, and (3) substitution in formulas,— to which pupils were formerly usually introduced in high schools are now found to be adapted to many pupils in the upper grades. Again, however, we need to keep in mind the fact that the abstractions of mathematics give peculiar difficulty to some learners. Sometimes the latter are of low mental ability in general, but sometimes they merely have a specialized incapacity for mathematics and may do well in other subjects. These pupils should probably be excused from all except the most elementary arithmetic, but their incapacities should not determine the general location of useful mathematical topics in the grades. For this purpose the general adaptability to the average pupil is a better guide. When this basis is adopted we find that under skilled teaching certain mathematical processes can be understood by many pupils at a much younger age than was formerly supposed.

Section III. Giving Pupils Clear Arithmetical Ideas

Give experiences with enough clear-cut, typical examples. —When the teacher undertakes to teach an arithmetical topic that has been found, in general, to be adapted to the pupils of her grade, one of the first questions she confronts is how to make the new arithmetical ideas or processes clear to the children. One of the answers to this question is, Give them ex-

perience and practice with enough clear-cut, typical, varied examples. Simple illustrations of this rule are found in the kindergarten teaching described above, where the children were given many concrete number experiences in counting beads, pupils, blocks, sticks, etc., in dividing blocks and paper into halves and quarters, and in handling cubes, cylinders, etc. Similar examples from a first grade were found in our account of the incidental counting in Miss Hardy's reading lessons (described on pages 77–119). There the children sometimes counted the chairs needed for the reading group, the number of lines in the reading chart, the number of new words they had learned, the number of books needed, the number of titles in the contents of a new book, etc. In this process they not only found delight but were acquiring correct number ideas through personal experiences and activities with a variety of objects.

Example of teaching buying and selling. *Amateur versus skilled teaching.*—An interesting illustration of the need of such personal experiences with realities in order to give correct arithmetical ideas is found in an account given me by Miss Estelle Daly of her weird experiences in teaching buying and selling during her first year of teaching and of her later modifications of her methods. She wrote as follows:

Amateur's method. Unintelligent ciphering.—One rare autumn day when I first began to teach I began an arithmetic lesson somewhat as follows:

"Girls and boys, here is a problem on the blackboard. I shall read it to you. John Brown had sixteen cents; how many pencils at four cents each could he buy and still have four cents left over? Hands up. What do you do first?"

I selected the most eager of the wildly waving hands and received this answer "Multiply."

"Multiply what?" I asked.

The boy answered, "Multiply sixteen by four."

With a gasp I questioned again, "Who has a different idea?" And from the fewer number of hands now presented I guessed that many were in sympathy with the first speaker.

The opinion of child number two was alike startling and revealed an unpenetrated abyss: "Subtract the four cents and multiply by twelve."

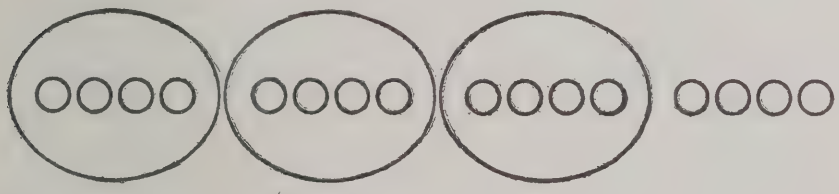
"Put your hands down and think," I commanded. Then after considerable silence pupil number one again vouchsafed an answer.

"If he had sixteen cents you subtract the four cents and get twelve pencils."

"I told you to think. Don't hold up your hand till you have reasoned it out. If John Brown had sixteen cents," I began again, dwelling pointedly on each word, but was interrupted.

A third pupil shouted frantically, and I thought the desired end was now at hand: "You subtract the four and divide by twelve."

"Class, pass to the blackboard," said I. "Draw sixteen circles and mark each one cent. Now draw a big circle around the first four, the second four, and the third four, so:



How many sets of four cents have you?"

Child number four answered emphatically, "Four."

"But John wanted to have four cents left. Leave the last four, and how many have you left?"

Child number two: "We have three sets of four, and four left over."

"Now," said I, with relief (for the period was about up), "How many pencils did John buy?"

Child number one: "He bought twelve pencils."

Hereupon the recess bell rang. They filed out. I sat down and stared into empty space with a blank expression and a poor notion of the blessings of the teaching profession.

Improved method.—The next day I began all over again. The course I followed then is the one I now use, and is as follows:

Much aim.—I start the arithmetic period with a well-rounded aim to develop in the children accuracy and the power to analyze carefully, to reason to a conclusion, and to state the result in good form. I want them to understand the nature of the problem and to acquire skill in dealing with numbers. I have aim enough to lead anyone to

believe that not only the present year's work but the whole future life of each particular child depends on the issue of the lesson.

Review of purchasing experiences.—In preparing the class for the situation I question them about the various stores where supplies of all sorts are bought—meat, shoes, bread, groceries, and so on, getting lots of enthusiasm and much voluntary information. I lead up to school supplies and where obtained. Many contributions are made as to what some particular child bought lately, what he paid for it, and what change he received.

Playing store.—Then I suggest playing bookstore. Each pupil contributes ideas concerning where we shall have it and how it is to be made—whether of board or blocks or what. Generally we end with a pine board stretched across a corner and supported by chairs. It is neatly piled with every supply necessary to a schoolroom like ours. The children lend books and pencils and tablets for the occasion. I furnish some real pennies and nickels and dimes, being very careful to watch all transactions so as to insure the safety of the treasury.

Behind the board stands as clean a child as is available, for a merchant must first of all be clean. One after another the children receive money from me, with which they go to the bookstore and buy back the supplies they have contributed. I always give them money that will require change. This puts a little calculation into the deal. The next time we play bookstore the prices are changed. Each child gets a new problem in buying and receiving change. The merchant, too, is different each time.

Tackling the John Brown problem.—A few lessons like this, and we are ready for the John Brown problem. I have the children all nicely seated and tell them the problem in story form. "A little boy had sixteen cents," and so on. The answer is generally correct.

Drill.—I have other problems of buying and selling pencils written on the blackboard. Individuals read and solve them, others criticize in case of error, and everybody contributes what he may.

Application to local buying.—I next ask how much pencils cost at the different stores where the children trade. Prices vary. At some places they are three for five; at others, one cent; elsewhere, five cents. We discuss the good and bad features of the pencils and decide where we can get the most for our money. We conclude with a good, wholesome determination to buy where buying is best.

Progressive schools and textbooks give clear ideas of arithmetical realities.—These lessons bring out clearly the value of giving pupils the personal experiences with realities that are necessary to give them an understanding of the arithmetical processes involved in some common type of arithmetical calculation. In progressive elementary schools similar procedures are followed in introducing children to every arithmetical process, from the simple counting of the kindergarten and first grade up to the study of banking in the higher grades. Similarly, the better textbooks take great care to give pupils clear ideas of the social realities and the arithmetical processes involved in each common type of arithmetical calculation that they introduce.

"Herbartian five formal steps" for clarifying a new process.—Miss Daly's later lessons on buying and selling (described above) illustrate for us also parts of a general procedure in teaching new abstract ideas which is known as the "Herbartian five formal steps." These steps were especially popularized in this country from 1895 to 1905 and are a useful device for aiding a teacher to plan her lessons in teaching pupils some arithmetical processes. The steps may be named and described in the following terms:

1. *Preparation.* Put the pupils in a favorable frame of mind for the new lesson by arousing their interest and reviewing related past experiences.

2. *Experiencing examples.* Give pupils real personal experiences with carefully selected, varied, clear-cut typical examples which illustrate the process to be taught.

3. *Active analysis.* Require active analysis and comparison of these examples by the pupils.

4. *Generalizing.* Aid the pupils to build up a rule to be followed in using the new process.

5. *Practice in using.* Provide well-selected problems or exercises to give the pupils practice and skill in using the process with more and more complex problems.

The three most important steps for good arithmetical thinking.—To be sure, these rules do not apply in introducing pupils to every arithmetical process. For example, the kindergarten and first-grade children who are learning to count do not formulate or follow any definite rules in their arithmetical thinking. Moreover, even when a rule is adopted a teacher will frequently be justified in stating it for the pupils without waiting for them to formulate it. However, the teacher who is keenly interested in making good arithmetical thinkers of her pupils will frequently observe all the above steps. Certainly, if reduced to the following three, they are especially important in clarifying pupils' ideas of new arithmetical processes.

1. *Clear-cut examples.* Give pupils real experiences with enough clear-cut, varied, typical examples of the process.

2. *Thoughtful scrutiny.* Raise questions which require them to examine these examples thoughtfully so as to comprehend the general procedure.

3. *Varied applications.* Give practice in using the process in new and varied examples that range from easy, simple cases to difficult, complex ones.

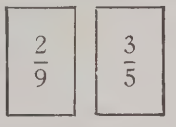
Section IV. Using Scientific Drill Systems

Recently developed for securing automatic accuracy and speed.—The last of the steps noted above—namely, varied applications—is important not only in clarifying and extending the pupil's comprehension of the process but also in giving him habitual accuracy and speed in using it. Great progress has been made in scientifically organizing arithmetical drill lessons and materials, for increasing each pupil's accurate and rapid use of the fundamental operations. We shall illustrate these improved drill methods and materials by some examples and then formulate certain general rules to be followed in such teaching.[1]

[1] Pages 157–162 are reprinted in part from the chapter on drill in the author's "General Methods of Teaching in Elementary Schools."

Drills with flash cards.—One of the first forms of such improved drill to be devised was the use of "flash cards." Each card has on it numbers as shown in the following examples:

Enough cards may be made by the teacher to provide for each simple operation in which she desires to give drill. The same pack may be used for several different types of drill; for example, a pack containing cards like the left-hand sample above may be "flashed" for drill in addition or multiplication or subtraction.

Eleven points of technique in fifth-grade drill with fraction cards.—The fine technique that a teacher may develop in using such drill cards is illustrated in the following account of a fifth-grade teacher's method of conducting a six-minute drill game in multiplication with a pack of fraction cards. The cards contained such fractions as  . In carrying on the drill game in multiplying these, each of the following numbered points represents a distinct item in the teacher's technique:

1. She stood before the class in such a position that the light fell on the cards so that all the pupils could see well and none faced a window.

2. She appointed a boy to time the game.

3. She wrote the multiplier (for example, $\frac{1}{2}$) on the blackboard behind her.

4. She made sure that all the children understood what they were to do.

5. She then said, "Ready, go!"

6. She flashed the first card (for example, $\frac{2}{9}$) by bringing it from the back of the pack to the front. The first child gave the answer as quickly as he could say it.

7. (1) If his answer was correct, she flashed the next card to the front of the pack. (2) If his answer was incorrect the next child gave the answer, and the card was dropped on the desk for future use and the next card was flashed.

8. This process was continued around the class until the whole pack of cards was used.

9. The teacher then picked up from the desk the cards to which incorrect answers had been given and flashed them again, calling on the pupils who had missed them (if she could remember without hesitation who they were).

10. She then asked the timekeeper for the time consumed and wrote it on the board—for example, "3 min. 30 sec."—under the record of the previous day for the same pack of cards and opposite the record of "3 min. 25 sec." made by another group of children.

11. She concluded with remarks intended to arouse interest in improving the record until it should equal a standard score, such as three minutes for this pack.

Six minutes, fifty problems, zeal and attention, application.—The total amount of time consumed in this drill in getting the class ready, flashing the cards, writing the record on the board, and making remarks about it was about six minutes. During this period nearly every child in the group of twenty-two was called on three times, and the total number of problems correctly worked was about fifty. Practically every child was attentive to each of these because of the intense interest in improving the score. After this drill, problems of areas, requiring the use of fractions in square measure, were assigned.

This drill lesson illustrates a group recitation in which the whole class gives attention to a common center. We shall now give two examples in which the children work as individuals.

Addition combinations to 9+9 to be said in thirty seconds.—Our first example of individual drill occurs in the third grade, where children memorize for rapid oral reproduction all the

forty-five addition combinations up to 9+9. These are all printed or mimeographed on a sheet of paper, in mixed order, making five rows similar to the following:

5	7	3	9	8	4	6	7	2
2	4	6	7	1	3	9	1	3

A copy of the sheet is given to each child when the teacher is sure that the combinations are generally understood. The technique in this case is also somewhat complex. The ultimate achievement expected of each child is ability to give orally the answers to all the combinations, in any order on the chart,—up or down, from left to right or right to left,—in thirty seconds. Every day some children are given trials and their records kept; for example, a child may in the beginning require forty-five seconds, decrease the time rapidly in a few days to thirty-seven seconds, but not attain the desired goal of thirty seconds for many days. Practice is given by concert drills and individual drills in school, and the children are urged to repeat the answers to someone at home who will time them and correct them.

Systematic and thorough; saves time from useless responses; analyzes and corrects wrong inner responses.—The outcome of the device is automatic skill in using rapidly the above-mentioned combinations in problems involving addition. The device is systematic and thorough in achieving this end, since it gives drill on all these combinations. It saves time in many ways. For example, it eliminates the time consumed in the old-fashioned drills by the teacher's asking, "What is 9 and 6, Johnny?" and waiting for Johnny to wake up and reply. It saves Johnny the time of saying "9 and 6 are——." He says merely "fifteen," as quickly as he can, when he sees $\frac{9}{6}$ on the paper. Moreover, in Johnny's later life it saves him from saying "9 and 6" thousands of times; instead, when he encounters $\frac{9}{6}$ in an addition problem he merely thinks "fifteen," just as he thinks "cat" when he sees the word, instead of thinking "c-a-t." In order to make sure that each child does read off each answer

in this automatic way, without going through some roundabout process, the teacher has to make a careful study of the children who are slow in learning to repeat the combinations in the desired time. For example, one such child was found who, when adding $\frac{9}{7}$, instead of merely recalling the answer, 16, thought of it as follows: $9+2+2+2+1=16$. The teacher had to break up this habit and get the child to think automatically $\frac{9}{7}$ / 16.

Printed sheets of problems for fundamental processes. *Timed tests, individual practice, self-correction, individual advancement.*—The second example of individual drills is an elaborate extension of the above type of device to the working of all kinds of problems in adding, subtracting, multiplying, and dividing, the problems being printed on sheets or cards ready to be distributed to the pupils. For example, each pupil may be given a sheet or card printed full of such problems in addition as the following:

6	4	3
5	8	7
1	2	6

All he has to do is to write the answers as rapidly as he can on transparent paper or through perforations in the problem card. He does not begin to write until the teacher gives the signal for the whole class to begin. At the end of seven minutes the signal may be given to stop. All pupils then cease work. They may turn the problem cards over, to compare their answers with the correct ones, which may be printed on the back of the cards, or they may use some other device for self-correction. Each pupil makes a record of the number of problems which he has right. If he has completed all the problems correctly, in the allotted time, he is given a different card of problems to work next time. The children who do not secure satisfactory scores on the first card may practice on it during study periods until the next timed test on it is given, when they are tested on it again, at the same time that other pupils are tested on the lessons to which they have progressed.

Elaborate systems organized by authors and publishers; elaborate routine instituted by teacher.—It is obvious that this scheme, which provides many sheets of printed problems and permits different pupils to progress at different rates and work with different sheets, is much more elaborate than the other examples of drill devices which we have described. It involves, in the first place, elaborate printed materials—printed sheets or cards of problems which have been carefully devised so as to give drill on all combinations and operations. This, however, is not a task that confronts the teacher, as it has already been performed by the authors and textbook companies. The teacher's task is to accustom herself and the pupils to the routine which is completely described in the teacher's manual that accompanies the drill materials. This need present no special difficulties, since the most elaborate routine can easily be taught to children if the teacher will take the trouble. This type of drill exercise, however, calls not only for elaborate routine organization but also for careful attention to the individual needs of pupils. Thus it saves much time in two ways: first, by having printed problems at hand, so that pupils spend most of their time in arithmetical thinking instead of wasting it in copying problems; and, second, by permitting pupils to cease drill on processes which they have already made perfectly automatic and to spend their time on other assignments from which they will derive greater profit.

Examples introduce to principles of drill.—The three examples of modern drill methods which we have described—namely, fifth-grade drill with fraction cards, third-grade oral drill with a chart of addition combinations, and systematic written drill in the middle grades with ready-made printed sheets of problems—serve to familiarize us sufficiently with concrete schoolroom drill situations to enable us to understand easily the general principles of teaching to be followed in organizing effective drill lessons, and to these we shall now turn our attention.

Six rules for scientifically organized drill.—These principles, or rules, for organizing drill may be stated as follows:

1. Only correct practice makes perfect; therefore
   a. Delay drill until the pupils understand the process.
   b. Secure nearly absolute accuracy at a favorable speed.
2. Avoid wasting time on nonessential and accessory processes.
3. Secure zeal, interest, and concentration of attention with short, snappy drills.
4. Use ready-made, scientifically organized systems.
5. Continue drill until precise standard scores are maintained.
6. Give practice in using abstract forms and processes in concrete situations.

For a full interpretation of these rules the reader is referred to the chapter entitled "Drill and Practice," in the author's "General Methods of Teaching in Elementary Schools." A special comment, however, is needed upon our rule to "secure nearly absolute accuracy at a favorable speed."

Accuracy versus speed.—The proper balancing of accuracy and speed in arithmetical practice has not been adequately determined by scientific investigations. Experiments with certain classes indicated that groups of pupils who were trained to add as *rapidly* as possible proved to be *more accurate* than groups that were trained to add merely with special attention to *accuracy*. In the face of such evidence, however, Thorndike makes the unique suggestion that the standards of accuracy that have prevailed in these experiments have been so low as to be entirely unacceptable in the practical use of arithmetic in business and science where essentially perfect calculations are the only ones that can be relied upon. Hence, he says,

> A precision of from 995 to 997 [correct operations] out of 1000 being required, and ordinary sagacity being used in the teaching, speed will substantially take care of itself. . . . Nothing save sure memory of the facts operating under the conditions of actual examples will give [this precision]. And such memories will operate with sufficient speed. (**10**: 108)

Section V. Measuring the Arithmetical Skills Attained

A sample test. *The Cleveland spiral arithmetic tests.*—Our chapters on handwriting, spelling, and reading have made us familiar with the general need for measuring the attainments and progress of pupils through the use of scientifically constructed tests and scales. For similar measurements of skill in arithmetical calculation numerous tests and scales are on the market. On page 164 you will find portions of one of these tests which was used in the survey of the Cleveland schools. Only a portion of the problems of each set is given, but these portions are so chosen as to illustrate what is known as the "spiral" feature of this test. For example, after a pupil has worked through a lot of easy problems in addition, subtraction, multiplication, and division he then encounters a second series with more difficult problems involving the same operations, and finally meets a third series with even more difficult ones. For example, you will find excerpts from all the sets of addition problems printed for convenient comparison at the tops of the columns on page 164. You will note that the addition problems in Set A are very easy; those in Set E are somewhat harder, because the columns are longer; and those in Set J are very much harder, because the pupil has to keep his attention concentrated during the addition of a fairly long column of figures. This test includes also problems in common fractions—an easy set and a more difficult one. Consequently the test may be used in the primary grades, where the children can solve the easy sets, as well as in the upper grades, where they can be tested adequately with the more difficult sets.

Pupil's needs and weaknesses diagnosed by varied graded tests.—Furthermore, such graded sets of varied problems may be used in diagnosing each pupil's special needs, since peculiar weak spots may appear in his arithmetical knowledge or skill, although he may be strong in certain operations. Thus we found

SET A—Addition

1	6	9	0	4
2	6	5	1	2
0	3	8	9	7
7	2	1	9	6
4	7	0	3	1
6	9	8	5	4
4	2	9	7	4
3	2	3	8	0
5	0	6	2	4
7	4	3	1	8

SET B—Subtraction

9	7	11	8
9	3	6	1
8	11	12	5
0	9	7	1
2	7	13	3
1	5	7	2
4	10	13	10
4	7	5	1
5	12	15	5
0	9	6	3

SET E—Addition

5	2	9	2
2	8	8	8
2	8	0	5
0	5	7	0
4	1	6	6
6	2	6	8
7	7	2	5
8	3	3	1
5	4	9	3
5	1	3	8

SET F—Subtraction

616	1248	1365
456	709	618
1267	1335	707
509	419	277
1355	908	519
616	258	324
1009	768	1269
269	295	772

SET G—Multiplication

2345	9735	8642
2	5	9
9735	2468	6789
9	3	6
5432	9876	8642
4	8	5
5432	3689	2457
8	5	6

SET J—Addition

7	9	4	7	2	9
5	2	5	1	9	6
4	4	8	9	4	2
2	8	1	4	8	4
6	2	4	3	5	7
0	7	8	2	1	1
5	5	5	8	5	3
1	3	1	5	2	9
8	6	3	2	4	2
3	1	9	7	3	3
2	4	6	7	6	8
9	8	3	1	7	5
9	8	5	9	6	5

SET K—Division

$21\overline{)273}$	$52\overline{)1768}$
$42\overline{)966}$	$23\overline{)483}$
$21\overline{)294}$	$62\overline{)1984}$
$32\overline{)384}$	$51\overline{)2397}$
$41\overline{)1681}$	$33\overline{)693}$

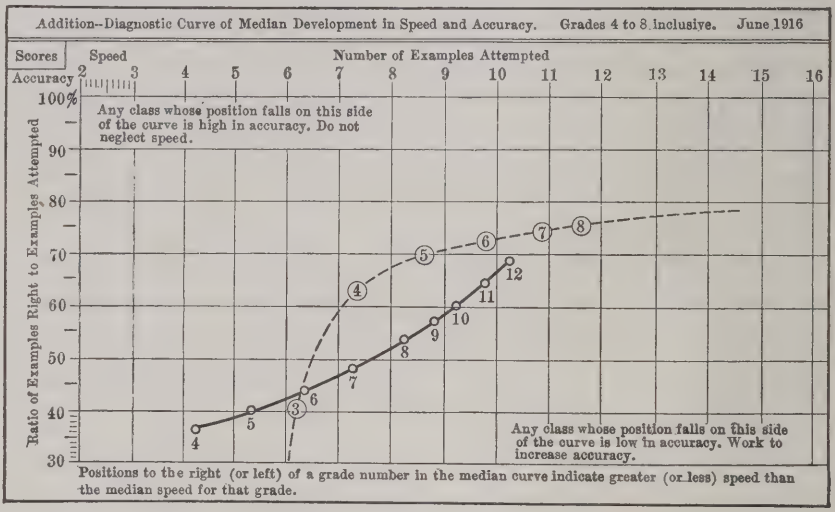
in the case of my son, at the age of twelve, that he had no special difficulty with problems in addition, subtraction, or division, but needed special drill in multiplication. These special weaknesses may be so detailed or specific as to involve merely certain combinations of numbers, such as $9 + 7$, even though the general process is understood. After these special difficulties have been detected in the case of each pupil, efforts should be made to remove them by a few moments of careful individual explanation and drill.

Standardized tests used to measure efficiency of arithmetic teaching.—The scientific tests and scales for measuring skill in arithmetical calculation have been used not only to ascertain each pupil's attainments, progress, and peculiar needs but also to measure on a large scale the relative success of various teachers, schools, and school systems in giving arithmetical skill. To illustrate the comparative measurements of results from different school systems we reproduce on page 166 a sample page from the survey of the Gary schools. In the diagram the heavy line represents the attainments of the Gary schools, while the light, dotted curve represents the attainments of thousands of children in other school systems. Speed standards are shown at the top and accuracy standards at the left.

Measured results show danger of neglecting drill.—The results from the measurements of arithmetical skill in the Gary schools illustrate the dire consequences of neglecting carefully organized drill in arithmetical calculation. Thus, Courtis, who supervised the measurements in Gary, says:

> All the Gary curves fall much below those of conventional schools. For all operations the *twelfth*-grade scores in accuracy at Gary do not attain to the conventional levels of *eighth*-grade accuracy, and for all except multiplication the rate of work is also lower. The *eighth*-grade results in rate are about equal to those of the conventional *fifth* grade, and in accuracy are lower. In division only do the *eighth*-grade scores in accuracy much exceed those of the *fourth* grade in the conventional school. (**11**: 158)

FIGURE 25. DEVELOPMENT OF RATE AND ACCURACY IN ADDITION*


Addition--Diagnostic Curve of Median Development in Speed and Accuracy. Grades 4 to 8 inclusive. June 1916
Scores
Speed
Accuracy
Number of Examples Attempted
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
100%
90
80
70
60
50
40
30
Ratio of Examples Right to Examples Attempted
Any class whose position falls on this side of the curve is high in accuracy. Do not neglect speed.
Any class whose position falls on this side of the curve is low in accuracy. Work to increase accuracy.
Positions to the right (or left) of a grade number in the median curve indicate greater (or less) speed than the median speed for that grade.

The scale along the top of the figure represents rate, or the number of examples attempted. The scale along the left-hand side of the figure represents ratio of examples right to examples attempted, or the accuracy of work expressed in per cent. Each point of the diagram, therefore, represents two scores—rate and accuracy. The position of the circle marked "4" on the general curve (broken line) represents a rate of 7.4 examples attempted and 64 per cent. accuracy.

The curve for the Gary results is shown by the heavy line. The circles show the position of the different grade scores.

The twelfth-grade score in rate falls between the sixth- and seventh-grade scores on the general curve, and slightly below the fifth-grade accuracy. The eighth-grade Gary results are not quite equal to the general fifth-grade scores in rate, and very much lower than the fourth-grade accuracy.

The portion of the general curve below the fourth grade is not very reliable, but the difference between the general character of

*Based on results at Gary and results from thousands of children in cities of many different types.

FACSIMILE OF A PAGE FROM ONE VOLUME OF THE SURVEY OF THE GARY SCHOOLS

Section VI. Selecting a Good Arithmetic Textbook

Textbooks properly determine many features of arithmetic-teaching.—Since most teachers of arithmetic very properly have their work determined to a large extent by the textbook which they use, we may appropriately close this chapter with a statement of some of the qualities of a good up-to-date text. This statement is derived to a considerable extent from the points brought out in the preceding sections of the chapter.

Qualities of a good text, derived from preceding sections of the chapter.—Among the important characteristics, then, of a good arithmetic textbook, are the following:

1. Its topics should be those that scientific studies of the everyday uses of arithmetic have shown to be common.

2. These topics should be graded according to scientific studies of the arithmetical abilities of pupils at different ages. These show, for example, that first-grade children as soon as they can read may use a simple textbook, while upper-grade children may well begin some topics formerly reserved for high-school texts.

3. The social reality of each topic or process should be clearly presented by means of descriptions, pictures, diagrams, etc.

4. In order to give a clear notion of each arithmetical process it should be introduced with clear model examples.

5. Frequently these model examples should be accompanied by carefully phrased questions or suggestions which stimulate pupils to scrutinize thoughtfully the various steps in the process.

6. The rules or summary descriptions of processes should be formulated in language that is precise and yet simple enough to be readily comprehended by the pupils.

7. Adequate problem material should be provided to clarify the pupils' comprehension of the important and varied applications of each process.

8. The first problems in each set should be so easy that dull pupils may readily solve them. The remaining problems should be arranged in the order of increasing difficulty, so as to give practice for all grades of arithmetical talent.

9. Scientifically organized sets of abstract drill exercises in the fundamental operations (including also fractions) should be assembled at psychological intervals through the book.

10. Materials or directions for organizing scientific tests of the pupils' needs and attainments should accompany the text, together with standard scores for these tests by which the general success of the teaching may be judged.

Conclusion of chapter on arithmetical calculation.—In this chapter we found occasion to follow the same general lines of discussion as appeared in the preceding chapters. Hence we considered such topics as adapting arithmetic to the needs of everyday life, organizing the instruction according to the pupil's mental age and psychological possibilities, giving him clear ideas of the processes to be learned, providing adequate drill experiences to give automatic skill, and measuring the attainments of pupils to ascertain their needs and progress as well as the general success of the teaching. I regret that space does not permit more detailed discussion of methods of teaching such stumblingblocks for many pupils as subtraction, long division, and fractions. For such details we must refer the reader to some of the excellent special books on the teaching of arithmetic which are listed in the bibliography at the end of the chapter.

Conclusion of Part I (on "four elementary skills").—This will conclude our discussion of the methods of giving pupils automatic skills in handwriting, spelling, simple reading, and arithmetical calculation which we grouped together in Part I of the text under the title "Four Elementary Skills." We shall now turn our attention to certain more advanced types of learning, which, for convenience, we have grouped in Part II under the title "Four Thoughtful Processes." While we shall have

much less reliable scientific evidence than in the case of the four elementary skills of Part I, many readers will, no doubt, find the discussions of these four thoughtful processes more interesting because they introduce us to some of the more advanced and colorful features of social and intellectual life.

BIBLIOGRAPHICAL NOTES ON ARITHMETICAL CALCULATION

The references marked with an asterisk are especially recommended to beginners.

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*2. KLAPPER, P. *The Teaching of Arithmetic.* (D. Appleton and Company, 1916.)

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Measuring results.—11. COURTIS, S. A. *Measurement of Classroom Products.* (General Educational Board, New York, 1919.) Excellent critique based on the Gary survey. Quoted on page 166, above.

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13. MONROE, W. S., DEVOSS, J. C., and KELLEY, F. J. *Educational tests and Measurements.* (Houghton Mifflin Company, 1917.) Chap. ii, pp. 17–65. Simple, practical directions for testing.

14. MONROE, W. S. "Principles of Method in Teaching Arithmetic as Derived from Scientific Investigations." *Eighteenth Yearbook of the National Society for the Study of Education.* (Public School Publishing Company, 1919.) Part II.

Purchasing tests.—Among the best sources from which to purchase arithmetic tests, as well as tests in other subjects and intelligence tests, are the following: The Public School Publishing Company, Bloomington, Illinois, Teachers College, Columbia University, New York City, and the World Book Company, Chicago, Illinois, and Yonkers-on-the-Hudson, New York. These agencies will send their catalogues of tests upon application. From these catalogues inexpensive "specimen packages" of tests in all subjects may be ordered. After examining the specimens, the teacher may decide upon the placing of her orders for larger quantities.

PART II. FOUR THOUGHTFUL PROCESSES

CHAPTER VIII

INTRODUCTION TO PART II

Reflective thinking a prominent feature.—This chapter introduces us to Part II of the book. The title and types of learning of this part appear as follows:

Part II. Four Thoughtful Processes.
Understanding Social Life.
Problem-solving, or Practice in Thinking.
Skillful Silent Reading.
Learning to communicate Ideas.

These chapters have been grouped together not only to aid the reader in grasping the book as a whole but also because carefully controlled reflective thinking by the pupil is commonly a prominent feature of all the types of learning included. In this respect these types contrast somewhat with the "four elementary skills" of Part I, in which the element of automatic behavior appears more strongly than in these "four thoughtful processes."

Insight plus three intellectual skills.—You will notice as you glance over the chapter headings of Part II that they include, first, knowledge or understanding of contemporary social life and then three intellectual skills; namely, skill in problem-solving, in silent reading, and in communicating ideas to an audience. If you will recall the characteristics of some of the best-educated persons you have known, you will probably find that they have this social insight and these three intellectual skills developed to a high degree. In this respect they are

greatly superior to the graduates of the old-fashioned elementary school, which gave its pupils little beyond the automatic skills in the three R's which we discussed in Part I. As we progress through the four chapters that follow we shall find out how a progressive elementary school of today succeeds in giving pupils something of the advanced social insight and intellectual skills that were formerly included only in a higher education. We shall take up first the discussion of understanding social life because the rich fund of ideas, problems, and reading experiences which a study of social life affords provides the pupil with many opportunities for securing practice in problem-solving, silent reading, and communicating ideas.

CHAPTER IX

UNDERSTANDING SOCIAL LIFE

ACQUIRING SYMPATHETIC INSIGHT INTO CONTEMPORARY CIVILIZATION

A Liberal Elementary Education

Don't be scared by the subtitle. —I realize that the first subtitle of this chapter contains such a formidable array of large words that it may frighten the timid teacher away. If you will begin the chapter, however, you will not find it difficult reading, and after you understand its content the subtitle may remain among your favorite pedagogical possessions.

Main points of the chapter.—1. To determine what ideas pupils need in order to understand contemporary social life, we may examine the table of contents of a weekly review of the world's events.

2. The topics found there are predominantly economic, industrial, and geographic, but embrace also all phases of social life, including politics, religion, literature, sport, etc.

3. In the elementary school such topics are studied in geography, community life, history, fiction, arithmetic, and applied science.

4. A description of a modern course of study in community life and history shows how pupils progress from a study of the local grocery store to an understanding of international migration and similar large topics.

5. The methods used to give pupils social insight along these lines are such as appeal to their instinctive interests, give vivid personal experiences, and stimulate attentive reflection.

6. Similar methods are used in teaching geography, fiction, etc. so as to give insight into contemporary civilization.

7. These methods give not only a considerable amount of precise information, but also secure social insight through developing feelings of meanings and sympathetic attitudes in the pupils.

Sections of the chapter.—The titles of the sections into which the chapter is divided are as follows:

I. What ideas give insight into contemporary life? (P. 174.)
II. What school subjects give ideas of social life? (P. 179.)
III. Progressive growth of pupils' social ideas through study of community life and history (p. 183).
IV. Evaluation of methods and devices used in studying community life and history (p. 211).
V. Devices for securing social insight through geography, fiction, arithmetic, and applied science (p. 233).
VI. What is sympathetic insight into contemporary civilization? (P. 252.)

Section I. What Ideas give Insight into Contemporary Life?

Securing a cross-section view of the world today.—The titles of this chapter imply that we desire to give elementary-school pupils a liberal education by cultivating in them sympathetic insight into contemporary civilization. Our first problem in carrying out this desire is to ascertain what ideas a pupil needs in order easily to understand the social life of his day and generation. We may secure an answer to this problem by examining a cross section of contemporary life as represented in the contents of those American periodicals that review the principal topics of the day. As an example we may begin with the titles of the articles found in an issue of one of our popular weekly reviews which appeared shortly after the close of the World War. The reader is invited to glance these topics over rapidly with two questions in mind: (1) In what subjects in school would most of these topics be touched upon? (2) What are the possibilities of training pupils from five to fourteen years of age so that they can easily grasp the meanings of such discussions and do intelligent thinking along similar lines? For example, the first topic (about the operation of railroads) falls

in the subjects of economics and civics; and elementary pupils might be prepared to understand it through studies of transportation, public utilities, etc.

Contents of an issue of a weekly review of the world.— Under the general heading "Topics of the Day" the following articles appeared:

New Problems to Face when the Railroads Go Back [to private operation].
A National Court for Labor.
Murder by Wood Alcohol.
How the New Irish Plan is Sized Up Here.
Palmer's Panacea for Profiteering.
Is there Profiteering in Sugar?
Another Huge Rockefeller Gift.

Under the heading "Foreign Comment" we find the following titles:

Japan to keep on fighting Lenin.
Armenia's Chance with Turkey.
Swedish Methods with Alcohol.
Spitzbergen staked off to Norway.

Under "Science and Invention" we find these articles:

An Invention to foil Telephone Eavesdroppers.
A Record in Railroad Safety.
Express Train paced by a Ford.
The Princess Tree.
Back to the Nightcap.
Depersonalizing Industry.
Camphor-Farming.
Mental Ability Classified.
Stock-raising Humans.
All about Barrels.
Odd Trolley Fares.
The Joyless Land.
Increased Production by taking Labor's Advice.
Duplicating Nature.

The remainder of the table of contents follows:

Letters and Art:
A Poet's Birthday.
German "Rapprochement" with French Letters.
A Pittsburgh Quixote.
Religion and Social Service:
The Church Pageant.
An Expert on the Soldier's Religion.
"Bushido" in Judgment on the West.
Current Poetry.
Education in Americanism: Palestine.
World-Wide Trade Facts [including brief articles on "Furniture Markets of South America," "Movements of Gold from the United States," "Exports of Wheat and Flour," "Copper Production," "Transvaal Gold Output"].
Personal Glimpses.[1]
Reviews of New Books.
Investment and Finance.
Miscellaneous.

Broad scope of these titles. *Preponderance of the geographical, the industrial, and the economic.*—It is obvious from this list that nearly all phases of contemporary life are reflected and reviewed in this magazine—politics, war, industry, trade, applied science, religion, art, literature, sport, etc. At the same time it is apparent that the majority of the articles contain discussions of a geographical, economic, or industrial character. The geographical discussions are suggested by such phrases as "The Irish Plan," "Japan and Lenin," "Armenia and Turkey,"

[1] The articles appearing under "Personal Glimpses" include the following: "The Recent World Cataclysm that went Astray"; "Haiti's Progress as Ward of the United States"; "War-Torn French Farm Lands again under the Plow"; "Can a Senator become President?"; "History's Answer"; "'Greens,' 'Whites,' 'Reds,' 'Radishes,' and other Russian Troubles"; "Hod Eller tells how he Beat the White Sox"; "Harry Lauder Used to mine Coal and could do it Now"; "Mexico's People Classified and Analyzed"; "He gets the Girl, but loses Two Hats"; "Roosevelt's Genius analyzed by a Biologist."

"Swedish Methods," "Spitzbergen and Norway," "German and French," "South American Markets," "Transvaal Gold," "French Farm Lands," "Russian Troubles," "Mexico's People," "Haiti's Progress." The economic and industrial trend is easily seen. The first article deals with the fundamental matter of transportation, the second with labor, the fifth and the sixth with prices. Many of the articles under "Science and Invention" are of a similar character; for example, "Railroad Safety," "Depersonalizing Industry," "Camphor-Farming," "Barrels," "Trolley Fares." The two sections entitled "World-Wide Trade Facts" and "Investment and Finance" are specifically economic in character.

Value of such ideas. *Liberal elementary education gives sympathetic insight into such contemporary matters.*—The value of training pupils to comprehend such discussions and to be interested in them readily appears when we think of a liberal education as one which gives a sympathetic insight into contemporary life and civilization. As suggested above, such a table of contents represents a cross section of contemporary life and civilization. The fact that it is so broad in scope suggests that the pupil must be given a similarly broad education, including a study of politics, war, industry, trade, applied science, religions, art, literature, sport, etc.

Such insight arises from thousands of ideas and meanings.—In order that the pupil may understand or feel the full meaning of any one of these discussions it is necessary that he possess the necessary fund of related ideas. These are often of a very technical and specific character. For example, the discussions of courts for labor disputes and of government ownership of railroads involve much technical information and judgment. An understanding of "Armenia's Chance with Turkey" calls for considerable knowledge of historical and geographical facts. To comprehend "Bushido in Judgment on the West" requires a knowledge of Japanese civilization and a balanced international point of view that can arise only from a thorough study of other

civilizations than our own. Even to understand "Hod Eller tells how he Beat the White Sox" involves a technical knowledge of baseball such as is possessed by few girls.

The best education gives a large stock of knowledge, ideas, and meanings.—Our conception of a liberal education as giving a sympathetic insight into contemporary life and civilization, and the recognition of the fact that such insight in each field of human activity is based on a body of related knowledge, give us some inkling of the importance of acquiring ideas and meanings in school. So important is this phase of education that William James, our greatest American psychologist and philosopher, said that the best-educated mind is the one that has the largest stock of ideas and meanings ready to meet the largest possible variety of the emergencies of life, and that the lack of education means largely the failure to have acquired such ideas, and the consequent liability to be floored or "rattled" in the vicissitudes of experience. (21: 146)

Value of knowledge, ideas, and technical information overlooked by superficial educators.—Frequently we read statements by educators to the effect that the best education does not include such learning of specific ideas, information, and meanings, but, instead, consists of "developing the child's powers, particularly his originality and initiative." We shall have special occasion to show the falsity of this view in the following chapter on problem-solving, where Thorndike points out the fact that the greatest problem-solvers in any line are also commonly possessed of very large stores of technical information in that line. The capable person with a good education has, in addition to several other things, both *knowledge* and *intellectual skills*. As indicated in Chapter VIII, the *skills* consist primarily of (1) skill in silent reading, (2) skill in problem-solving, and (3) skill in communicating ideas to others. The *knowledge* possessed by such a well-educated person consists usually of (1) thousands of facts and other ideas within his special business or profession plus (2) thousands of facts and other ideas and

meanings which give him a broad insight into many phases of contemporary life and civilization.

How can elementary schools give insight into many phases of contemporary life?—It is not the task of the elementary school to give pupils the specialized technical knowledge of some special business or profession, but it is its function to give pupils as broad an insight as possible into many phases of contemporary life. In considering how it can do this we shall now return to the two questions which the reader was asked to keep in mind in reading the table of contents of the weekly review.

Two questions: subject content and pupils' possibilities.—The two questions which the reader was asked to keep in mind while running over the contents of the weekly magazine cited above were these: (1) In what subjects in school would most of these topics be touched upon? (2) What are the possibilities of training pupils from five to fourteen years of age so that they can grasp the meanings of such discussions and do intelligent thinking along similar lines? We shall take up the first of these questions for special discussion in Section II.

Section II. What School Subjects give Ideas of Social Life?

Geography and community life. *Include direct study of many contemporary topics.*—Many of the topics included in the cross section of contemporary life composing the table of contents of a weekly review are contained in the old, well-established subject of geography and the newer study of community life and civics. When geography is broadly conceived as the study of the earth as the home of men, or as a study of the relations of the earth and human society, it includes not only such matters as the location of Japan, Armenia, Turkey, Sweden, Spitzbergen, Palestine, and Haiti (countries which are discussed in the above magazine) but also discussions of their natural resources, industries, trade, population, the character of

their peoples, etc. The newer subject of community life provides additional study of the same topics, with the emphasis upon the characteristics of group life as determined by human wants, needs, interests, etc. For example, looming large in the study of community life are the great human problems of food, shelter, clothing, fuel, power, transportation, health, and recreation, while many other detailed problems, such as the study of inventions and of exchange, are considered.

History. *Historical method used in study of recent events.*—There are, however, a number of other school subjects which prepare pupils for an insight into contemporary life, although not quite so obviously as do the study of geography and community life. One of these is history. The way in which history contributes readily appears when we realize that in nearly all our study of geography and social life we use the historical method; that is, we study the facts of yesterday or last week or last year or the last ten years, etc. These, of course, are historical materials, even though they be very recent. When we realize the difficulties of getting materials together for a study of remote parts of our own country, and when we appreciate the desirability of having these materials systematically organized so that the work of each grade builds a foundation for later grades, it becomes obvious that our data for helping pupils to understand the world of today will nearly always be historical. This being the case, our problem is to select from stories of the past such material as best illuminates the present. Such material will often not be that of yesterday but of many years ago. For example, a study of a recent invention in the cotton industry does not help us to understand the trend of modern society as well as would a study of the influences of the development of machinery for cotton factories between 1764 and 1860.

History frequently a key to the present.—Moreover, present events are often so dominated by early historical occurrences that the latter furnish a key for understanding the present. Recent examples are found in the European tangles over bound-

aries between countries—tangles with which the Versailles Peace Conference wrestled for months. The understanding of each tangle and its unraveling called for much expert historical information. In America we find an example of using historical study, as an aid to an understanding of present problems, in the frequent discussions of the nature of American democracy. Such discussions commonly lead back to a study of the Declaration of Independence and the Constitution, of the conditions which prevailed during the framing of the latter, of the compromises which it included, of the changes which have taken place since, —notably the increasing tendency to give more power to the national government,—etc. In the articles and discussions that are reported in the weekly magazines frequent references are made to such historical aspects of the questions under consideration.

Historical reading a contemporary interest.—Finally we may note that historical reading is one of the principal forms of serious reading and of recreational reading other than that of fiction. This fact was noted by Professor E. Horn in the following paragraph:

> One book out of every ten published in 1913 was history. In 1913 one book in every seven consulted in the reference department of the New York City Library was a history,—more than were consulted in geography and travel, science and technology combined. Eight per cent of the books drawn for home use were classed as history, as compared with three per cent in the case of technology, three per cent in the case of science, and three per cent in the case of geography and travel. It must also be kept in mind that a large part of the books classified under other headings (notably under biography) contain a large amount of historical material. The percentage of books in history drawn by children is still larger as compared with those drawn by them in science, useful arts, geography, and travel. (**4a**: 34)

Historical ideas thus contribute to insight into contemporary life.—From these facts concerning history—namely, (1) that contemporary review articles use the historical method in describing recent events, (2) that history is often a helpful key to

the understanding of present-day problems, and (3) that the habit of historical reading is a prominent characteristic of many educated persons—it follows that the ideas which history provides rank as quite important in giving children a sympathetic insight into contemporary life and civilization.

Fiction-reading. *Gives ideas of human nature and of contemporary fiction.*—Thus we have shown the part played by the study of geography, community life, and history in giving pupils ideas that will aid them in understanding the discussions of current topics such as those contained in our review magazines. A fourth subject that contributes greatly to such an understanding is the fiction-reading that pupils do during the reading periods or just for fun. In a later chapter, on training for enjoyment of leisure, we shall discuss such reading from another point of view. Here we may note merely two points: (1) the ideas of human nature which pupils derive from their story-reading influence them in understanding human affairs generally; (2) fiction-reading is one of the most characteristic features of contemporary life, and therefore the person who would have a sympathetic insight into contemporary civilization must be acquainted with its fiction and fiction-writers.

Arithmetic. *Gives ideas needed for quantitative study of contemporary civilization.*—Next in our survey of the subjects in school that help a pupil to understand discussions of current topics we may note the part played by arithmetic. In many of the articles in the weekly reviews statistics and other quantitative materials are used. Thus the article on railroads deals with billions of dollars, millions of employees, percentages of earnings, etc. The article on sugar profiteering discusses sugar at $6\frac{1}{2}$ cents, 10 cents, 12 cents, and 25 cents a pound. The Rockefeller gifts are tabulated in another article and shown to total $500,000,000. Spitzbergen's coal shipments are given in thousands of tons, and its contribution to Norway's needs is calculated. It is the function of arithmetic to give pupils not only the elementary number ideas that they may use in their daily deal-

ings but also the ability to understand the larger quantitative aspects of social needs and activities.

Applied science. *Frequently featured.*—Finally, we should notice that natural science, particularly as applied to human industrial or health needs, is not uncommon in current discussions. For example, in the titles listed at the beginning of this chapter the following are concerned with health: "Another Huge Rockefeller Gift," "Back to the Nightcap," "Stock-raising Humans," and "The Joyless Land," the latter being concerned with children's diseases in central Europe after the war. Applied physics is represented in the article on "An Invention to foil Telephone Eavesdroppers," and forestry in the articles on "The Princess Tree" and "Camphor-Farming."

Conclusion of contemporary-life subjects. *Geography, community life, history, fiction, arithmetic, applied science.*—Thus we have answered the first question which arose from our examination of the topics from contemporary life that are discussed in a high-grade weekly review. The question was, In what subjects in school would most of these topics be touched upon? Our answer is, Predominantly and directly in the study of geography and community life; considerably, but sometimes indirectly, in history, fiction-reading, arithmetic, and applied science. These subjects, then, and others in some degree, include ideas and meanings that may assist in giving pupils a sympathetic understanding of contemporary conditions and events.

Section III. Progressive Growth of Pupils' Social Ideas through Study of Community Life and History

Growth of pupils' ideas depicted in courses of study.—Let us now turn to our second question, What are the possibilities of training pupils from five to fourteen years of age so that they can grasp the meanings of such discussions and do intelligent thinking along similar lines? In answering this question we shall describe parts of a course of study which show the

growth of pupils' ideas as they progress from the kindergarten through the grades. We shall take the "Course in Community Life, History, and Civics" of the Elementary School of The University of Chicago for 1917 because it was published not merely in the form of a series of topics but as a series of descriptions of what the pupils actually do in each grade. Thus

Courtesy of Hyde Park Baptist Kindergarten, Chicago

"THIS IS THE WAY WE WASH OUR CLOTHES, WASH OUR CLOTHES," ETC.

Evidently, however, it was not "on a cold and frosty morning" that these children did it

we may get not only a notion of the progressive growth of their ideas but also suggestions of the teaching devices that are used in making their ideas clear, vivid, permanent, systematic, usable, etc. Later we shall take up these devices for special study, since they are such big factors in the actual work of the teacher.

Kindergarten studies immediate environment.—In the kindergarten the approach to a comprehension of contemporary life and civilization is begun through a study of the home in its relation to stores and other features of the immediate environment of the children. The general method of procedure is suggested by the following account of one portion of the activity.

Playing house.—When the children first come to school they find, among other attractive things, such toys as dolls, some doll furniture, kitchen utensils, and dishes. They play with these freely, as they do also with blocks, sand, and clay. The teacher may easily lead this play in the direction of cooking and serving plays. There soon begins to take form in one corner of the room, therefore, a miniature kitchen or dining-room. The teacher then produces a screen house (with a door and windows) which serves to inclose this little room. The latter may now stay in place as long as it is wanted.

This playhouse now becomes the center of great interest and activity. Clay utensils and dishes are made, a cupboard to hold them is built of blocks, paper is cut for the shelves, paper doilies are cut and fringed, napkins are folded, and a meal is planned.

Playing grocery.—A trip to the grocery is necessary to buy a cereal, which is then cooked and served by the children. The trip to the store suggests the building of a grocery store in the classroom. This now becomes the second problem, or project. It calls for much planning and experimenting and results very naturally in group work, since the final product is a structure made of blocks and boards which is large enough for three or four children to play in at the same time. Another excursion is needed to get suggestions as to how to make the shelves, the counter, and the show windows and to learn what a grocery store really carries for sale. Numerous lesser problems present themselves for the children's solving: vegetables and fruits of clay must be shaped and colored accurately enough to be readily recognized, and baskets made to hold them; paper bags must be contrived; pictures must be made to show what canned goods are in stock; pocketbooks and money for the buyers must be provided and delivery wagons constructed. These are not made from patterns or models, but are worked out by the children and the results tested by actual use in playing in the grocery store. (3a: 401–402)

Furnishing a home and building a community.—This account of the study of a grocery store and its activities might be paralleled by accounts of later study of the home and the community by the same methods. In connection with the home "the children construct miniature individual rooms, using boxes for the floor and walls, and paper for decorating and furnishing these rooms." Each child even designs a little rug of jute and weaves it

upon a cardboard loom. In the study of the whole community miniature streets are laid out on the floor by using blocks and other materials to represent sidewalks, streets lights, and mail boxes. In a miniature business street the character of each store is designated by the goods displayed in its windows.

Courtesy of The University of Chicago Elementary School

COMMUNITY OF HOUSES CONSTRUCTED AS A KINDERGARTEN PROJECT

Such a project calls for careful observation of various phases of the immediate social environment

Activities used in kindergarten study of community life. *Imitative play, excursions, constructions, problem-solving, language expression.*—From this account we see how even five-year-old kindergarten children may have their attention directed to a study of some of the fundamental features and problems of modern life as represented in their immediate environment. The methods used in doing this include the following activities by the pupils:

1. *Playful imitation*, or dramatic reproduction, of activities observed. In playing store or playing house the pupils are re-

quired to recall and canvass their experiences at home and on excursions, to clarify these, to select certain ones to be reproduced, and to organize these in a series of activities.

2. *Excursions*, to give first-hand, real experiences with the thing or activity to be reproduced. Such an excursion may be merely a little walk to mail a letter in the mail box on the corner or, at Christmas time, to view the large fireplace in the school foyer. Since many of the children live in apartments and have never seen a fireplace, this experience may help to clarify their ideas concerning an important feature of a house. On the other hand, the excursions may be made for the purpose of studying and restudying such a complicated place as a grocery store.

3. *Construction* in miniature of the object or situation observed. Such construction checks up the pupils' vague ideas and requires that these be clarified before a satisfactory product can result.

4. *Problem-solving thinking*, to plan, design, and correct the construction. In the chapter on problem-solving (pp. 286–293) we shall present a lesson which shows how the children's ideas of windows, doors, hinges, etc. were clarified by their problem discussions during the construction of the front of a cardboard grocery store.

5. *Expression* of the experiences *in language*. Such expression by the children is taking place during all the discussions of the excursions, plans, plays, and constructions, but these are specifically summarized at times into a story consisting of several sentences, such as "We made a trip to the bird store," "We saw—," etc. For a complete example of such a summary statement see page 412, where it is given as an illustration of training in the communication of ideas.

Pupil activities to be especially discussed in Section IV.— In the above paragraphs we have described five types of activities carried on by pupils in the kindergarten who are acquiring ideas of contemporary social life; namely, (1) playful imitation of observed activities, (2) excursions to give real experiences

with important features of the immediate environment, (3) construction in miniature of observed objects or situations, (4) problem analysis in designing or correcting such constructions, (5) expression in language of the fundamental elements of the whole experience. In following the descriptions of the course of study in the later grades, the reader should note other examples of such activities preparatory to a general discussion and evaluation of them in Section IV of this chapter. We shall now follow the pupils into the first grade, to see how their ideas of community life are extended beyond their immediate environment by a study of farm life and Indian life.

First grade; farm study. *Extends city children's ideas beyond immediate environment.*—In studying farm life some classes of city children may be able to make an excursion to a neighboring farm, but many classes may not. However, except in the most congested city environments, children have had experiences with open fields or with parks in which grass and flowers and trees are growing. Moreover, many of them are familiar with various kinds of domestic animals. Furthermore, many of the children have cultivated plants in the kindergarten or first-grade classroom or in the school garden. With such *real* experiences to start with, further experience may be imparted as described in the excerpts from our course of study given below.

Farm pictures discussed. Descriptions made for reading material.—Discussions of what a farmer does leads to a study of farm pictures. From these, reading lessons may be constructed by the pupils according to the methods described in Chapter V, pp. 90–91. Examples of the sentences composed in such a lesson are the following:

> We see a barnyard on the farm.
> We see fields on the farm.
> We see orchards on the farm.
> We see woods on the farm.
> We see a brook on the farm.
> We see a garden on the farm. (**3a**: 406)

Making miniature farm on sand-table and "Farm Book."—On the sand-table a miniature farm is set up. This activity requires more careful attention to certain details than in merely observing a picture. The pupils also make a "Farm Book" containing pictures cut from magazines, drawings, reading lessons, etc.

Imitative play showing relation of farm, store, and home.—The farm as the source of food supply becomes very familiar. To make this phase of it more vivid a grocery store is visited and farm produce is noted, thus making the connecting link between farm and home. The transporting of food from farm to home is discussed, and a little play is arranged to illustrate it. (**3a**: 407)

Butter made to illustrate food production in miniature.—Finally . . . the preparation of some of the simple farm products for the table is begun. . . . Following is a typical oral composition in which the pupils gave the recipe for butter-making. This was later used for a reading lesson.

> We put a half-cup of cream in a bottle.
> We shook the bottle about ten minutes.
> We said this rime:
> "Come, butter, come.
> Come, butter, come.
> Johnnie's at the garden gate
> Waiting for his butter cake.
> Come, butter, come.
> Come, butter, come."
> When the butter came we washed it.
> We put in a half-teaspoonful of salt.
> We made it into a pat.
> We invited some other children in.
> We ate our butter on crackers. (**3a**: 407)

Seasonal changes on farm represented in sand-pan.—[After a time] the sand-table farm is changed from a summer farm to a fall farm. The corn is stacked in the fields, and apples of clay, painted red, are put in piles in the orchard. Clay pumpkins are made. The green trees are replaced by twigs representing the bare trees. A miniature Thanksgiving table is set and provided with every available farm product which is suitable for this season and which can be represented by the children through paper-cutting, modeling, or construction. (**3a**: 408)

Indian life further removed. *Yet simple activities easily understood.*—These descriptions give us a notion of the activities of the pupils as their ideas of community life are extended to include a source of food supply remote from their homes but intimately linked with their lives through the grocery store and its food products from the farm. Ideas of even more remote conditions are acquired when the children continue their course by studying Indian life. The latter is so interwoven with early American life and so vivid a feature in many American stories that for these reasons alone it is worth introducing into pupils' experiences. However, in the first grade it is used not only for its story features but particularly to give pupils vivid ideas of the fundamental human wants and of simple, primitive methods of meeting these. Through dramatic and constructive activities they study the following features of Indian life: hunting and fishing, including the making of bows, arrows, and canoes; housing and moving, including the making of a wigwam; clothing, including the making of simple Indian suits; cooking; feasting; dancing; etc.

Strategic types of primitive life give ideas of social needs and methods.—From this point on, various types of civilization might be studied in order to enrich the children's ideas concerning the world of today and its fundamental social needs and activities. Owing to the fact that these are represented in very simple form among primitive peoples, it has become customary in recent years to study in the primary grades two or three other examples of primitive life in addition to the study of the Indians. The types chosen should be such that the ideas derived from them may be widely used by the children in later study and reading. During recent years in The University of Chicago Elementary School the primitive type of shepherd life and the life of the Vikings have been used as meeting these requirements.

Shepherd life. *Prominent in Asia and in the Bible.*—The primitive type of shepherd life is very prominent in Asia at the present time. In history and literature it is very important owing

to the fact that it was so prominent among Biblical peoples and consequently is a prominent feature in the stories and figurative language of the Bible, the greatest book in our literature. Through the fine oriental rugs imported from shepherd people of Asia the industrial products of these people have become a common feature of our artistically furnished homes.

Courtesy of The University of Chicago Elementary School

CHILDREN WEAVING ON SMALL LOOMS

A realistic basis for ideas of a great industry

Shepherd life studied in second grade. Problem lesson.— The study of shepherd life is taken up in the second grade. The same kinds of activities prevail as in studying the farm and Indian life in the first grade; namely, imitative play, construction, problem-solving, language expression. In the following chapter, on problem-solving (pp. 293 ff.), we shall present in detail a lesson which shows how children discuss and work from day to day on Arabian projects. In this particular lesson they were designing costumes for Arab dolls for their desert settlement in the sand-pan, and they referred to pictures of

Arabian life to check up their ideas. A special feature of their construction work in this study is the making of rugs. They experiment with various materials for dyeing the wool, such as coffee for brown, mustard for yellow, grape juice for purple, spinach for green, etc. Each child weaves a rug on a small loom.

Weaving as a great industry. Story background.—As these constructive activities have been rather fully illustrated in the earlier grades, we shall point out here the *literary* experiences that are given the children to enrich their ideas of shepherd life. The course of study reads as follows:

Great weaving among shepherd peoples.—Stories of shepherd life and of great weavers form the background of this textile work. The life of the shepherd peoples is an ideal subject for little children, offering poetry, beauty of imagery, and a life of simple ideals.

The work is introduced by showing the children bits of weaving from the looms of those peoples that stand out prominently as weavers: the Navajo Indians, the Persians, the East Indians, and the Arabs. The point is made that all great weavers have been shepherd people. . . . The children are told Bible stories of Abraham, Joseph, and David. The twenty-third Psalm is read and re-read.

Bedouins studied as a desert type.—The work is sometimes based on the life of various shepherd peoples and sometimes confined to one people, when it is more completely worked out. . . . If the shepherd life of the Bedouins is to be studied, stories of Arabia are told, such as some of the Arabian legends, the story of "The Lance of Kaṇana" by Abd el Ardavan, Browning's "Muléykeh," and parts of Jane Andrews's "Seven Little Sisters."

Preparing puppet plays compels refining of information.—The children enjoy making a toy stage on which to give a puppet play of Arabian life [as shown in the picture on page 295]. In preparing for the play, dressing the puppets, and making the scenes and the setting, the children are faced by their lack of information, and questions and efforts follow, to find out what they need to know. Bit by bit these details of the subject are worked out through reading lessons, pictures, stereopticon views, and trips to the Washington Park Conservatory to see the [tropical] vegetation and to the Field Museum to see costumes and implements. (**3a**: 413–414)

Viking civilization. *Offers strategic contrast and center of interpretation.*—The study of the Vikings, which comes in the third grade, offers a very strong contrast to the desert type of shepherd life which was emphasized in the second grade. This contrast helps to make vivid in the minds of the pupils impressions of the varied natural conditions and modes of life that are to be found in the world. Moreover, the Vikings and their civilization are worth studying as a center of interpretation in history and literature. From the early explorations by the Scandinavians and their reputed discovery of America down to their notable social developments of today and the contribution of their emigrants to recent American life, the part played by these hardy peoples is a notable one. A few quotations from the course of study will suggest how the Viking study contributes to the progressive growth of the pupils' ideas of social life which we have been following from the kindergarten up:

Imaginary journeys to Norway; fiords in sand-pan.—As a brief introduction to the study of the Vikings the children take an imaginary journey to Norway, getting through pictures an idea of the ruggedness of the country, with its mountains and waterfalls, its rocky coast, and its many fiords. They represent the coast in the large sand-pan, with boats threading their way past the islands up the long, narrow inlets.

Evolution of boats worked out by pupils.—Attention is concentrated for a time on a study of primitive boats and how they evolved. The children are led to imagine themselves in an age when boats did not exist but where travel by water was desirable. They construct in imagination some of the early boats, then suggest inventions that would improve them, and illustrate their ideas on the blackboard.

Seafaring life and exploration made vivid; original stories.—A study of the Vikings as a seafaring people follows. Three fourths of the semester is spent upon this topic. . . . It includes a study of their ships, weapons, homes, occupations, and incidentally their education, dress, and pastimes. . . . The children readily see that through constant life on the sea, both in getting food and in other adventure, the Norse gained a love of the sea—its bigness, beauty, and force; that they became brave, hardy, and strong; that their natural fear-

lessness led them beyond their own waters. . . . A definite study is made of trade and adventure, special emphasis being laid upon the kinds of ships and weapons used. . . . Alternating with the construction work, or running parallel with it during the literature period, the first four stories from the "Viking Tales," by Jennie Hall, are read aloud. . . . The result of this work is sometimes embodied . . . in an original story of adventure composed by the children and similar in nature to the stories studied.

Feast hall constructed and furnished.—Some of the sagas are [next] read. This leads to a study of the Vikings' homes and the feast hall, which was the center of their social life and the place for the recital of adventures in song and story. . . . The pupils design and make a feast hall and its furnishings of cardboard. They work in groups upon certain features of the hall, and the best product of the group is used for the final production. The feast hall may be set up in the sand-pan, together with other buildings comprising the home. . . . When the construction is completed the children arrange in the sand-pan some scene selected from the various stories they have heard or read, such as a home-coming or a feast. This makes a fitting conclusion to the history of the Vikings. (3a: 417–420)

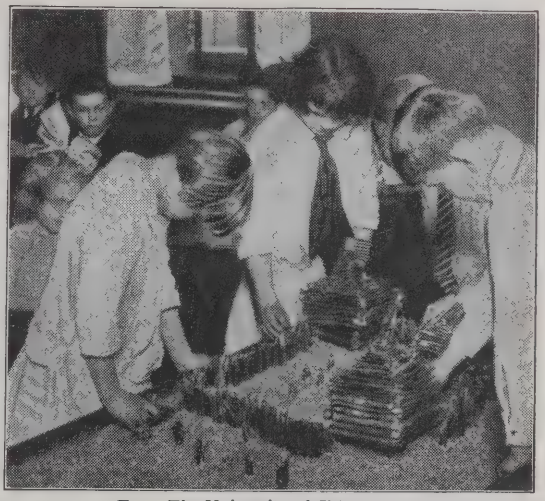
Local history. *In third grade. Early Chicago.*—In the second half of the third grade is found the subject of local history. It centers in the study of Chicago in pioneer times, followed by a study of some of the present-day local-community problems. The manner in which this work grows naturally out of the pupils' previous study of Indian life and of Viking exploration and travel and is facilitated by the ideas there acquired is suggested by the following quotation:

Explorations of Great Lakes by hardy French introduce the study.—As an introduction to the study of old Chicago, the fur-trading post, the story of the discovery and exploration of the St. Lawrence River is briefly told. The St. Lawrence River and the Great Lakes are traced on the sand-table, and the children imagine that they are French explorers and make the journey to Chicago in toy ships and canoes.

Prairie and swamp life of the pioneer times pictured.—An idea of the appearance of the country is gained through a study of pictures of prairie and swamp, through stories of the life and activities

of the Indians and the French, and through personal experiences of children who have seen similar stretches of country. Pictures and mounted specimens of the otter, mink, beaver, duck, partridge, and other such birds and animals as are typical of this region are studied. (**3a**: 422)

Pupils now return to home community with enriched ideas of social needs and activities.—The development of Chicago is then traced by the same methods of construction, illustration, discussion, description, dramatization, and reading that we found characterizing the work in the earlier grades. The study of the Chicago of recent times occurs toward the end of the third grade. Including the kindergarten, by this time the pupils have pursued the study of community life for almost four years. It began with the neighborhood around their homes, and extended, in the first grade, beyond their immediate environment to the farm, which, however, was closely connected with their homes through the purchase of farm products in the grocery store. A further step in giving the pupils ideas of life remote from home was taken in the study of the Indians, a people often somewhat familiar through stories, pictures, and the circus. Still more remote from their daily experiences were the ideas of shepherd life derived through stories, dramatizations, constructions, descriptions, etc. Finally, in the study of the Vikings, explorations by hardy adventurers who crossed the seas to the shores of foreign



From The University of Chicago Elementary School

FRONTIER FORT CONSTRUCTED IN SAND-PAN

lands formed some basis for understanding the work of the hardy Frenchmen who pushed up the St. Lawrence and Ottawa, portaged into the water flowing into Lake Huron, and eventually reached the site of Chicago. Finally, in the study of the development of the city, we have the children brought back to their home community, but with the latter greatly expanded beyond the local neighborhood which they embraced in their experiences in the kindergarten. Moreover, they return with ideas of human wants and needs, and of methods and devices for meeting these, greatly enriched through contacts with civilizations as varied as those of the desert shepherd and the Viking, yet simple enough so that the pupils can readily see the connection between need and means of supply—a connection that is frequently so complicated and hidden in our complex city society of today as to puzzle even well-informed readers.

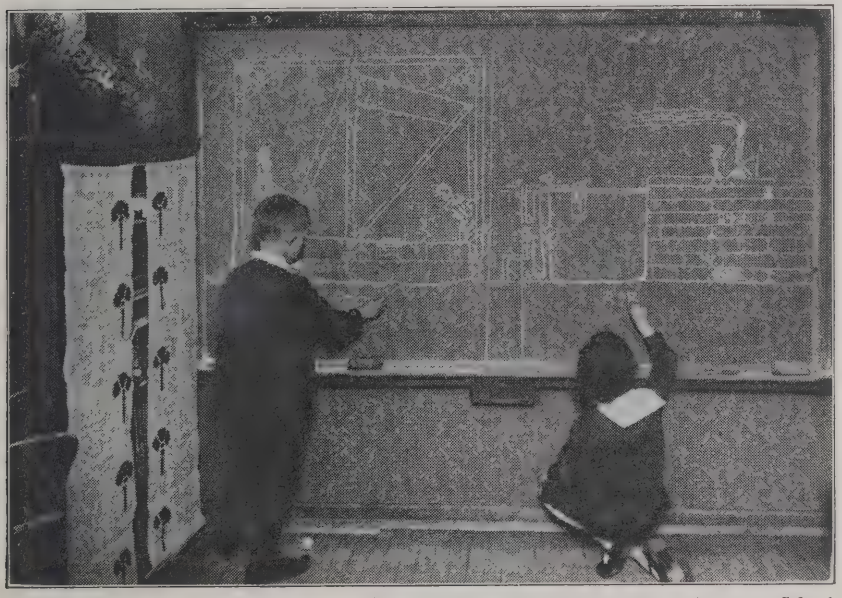
Study of water supply typifies pupils' ideas and teacher's method at end of third grade.—Having brought our pupils back to their home town with their ideas of community life greatly enriched, let us illustrate this stage in the progressive growth of their ideas of community life by a description of their study of one feature of Chicago's recent development; namely, its water supply. The following quotation shows the general method:

THE WATER SUPPLY

Discussions demonstrate pupils' superficial knowledge.—Attention is called to the ease with which water can now be obtained in the city for any purpose. The present system, with its drinking-fountains, convenient faucets in kitchen, lavatory, and laundry, and pipes for lawn and garden, is briefly discussed, and the children see that their knowledge of how it is supplied is very superficial. They do know, however, the ways in which water was obtained by the early settlers, and that knowledge forms the basis for the development of the topic.

Early town actions impersonated.—Pictures of early Chicago and of other settlements in which rivers and wells are prominent are collected. Children who have been in the country describe ways of

obtaining water other than that employed in the city. They relate personal experiences, study pictures, and discuss springs, rivers, lakes, and wells as sources of supply. A sketch of the well sweep is made in the art period, to accompany a short written description of primitive means of securing water. In their reading (Hall's "Story of Chicago") the children learn that because people were careless the water in wells and river became impure and much sickness resulted. They also see that the early means of supply were inadequate



Courtesy of The University of Chicago Elementary School

BLACKBOARD DRAWING USED AS A MEANS OF CLARIFYING IDEAS OF SOCIAL DEVICES

to meet the needs of a large group of people living close together. The children impersonate the village people and hold a meeting at which they discuss means of protecting the health of the people. A law is made forbidding the throwing of garbage into the river, streets, or vacant lots. The fact that the failure of pioneer methods was due to the rapid growth of the town and to carelessness is made prominent.

Early pier system modeled and criticized.—The lake as the source of supply is next considered. The children read of the attempts of individuals to supply the people with water by bringing it from the

lake in water carts. They see that this was a poor plan because the water was dipped from the surface near the shore and because it cost too much. The pier system, planned and directed by a number of profit-sharing individuals, is next studied. A map, locating the pumping station and the pier of the first water system, based on the Water Supply map of 1836, is drawn on the schoolroom floor. The children represent the pier with a few boards, blocks, and a section of water pipe. Some of the questions considered here are: "Did this system supply clean water?" "Could it be depended upon?" "Was the supply sufficient to meet the needs of a growing city?" In the free discussion accompanying the study of the map and the building of the pier the following points are brought out: the water was not pure because it came from too near the surface and because the southward current of the river swept the refuse down to the intake pipe; the system could not be depended upon in winter, as the water in the pipes froze; the system could not be enlarged to meet the needs of the rapidly growing city, and it was too expensive for everyone to use water freely. Mention is made of the fact that the attempts of individuals and of corporations to supply the people with water had failed.

Children eager to know of modern crib solution.—At this point the children are eager to know how the problem was finally solved. Questions similar to the following are asked to direct the thinking and to prepare them for a study of the present system: "What things must be true of a successful water system?" "Where in the lake do you think the water is cleanest?" "Why?" "Could pipes be laid away out there?" "Why not?" "What ways can you suggest for bringing the cleaner water from so far out in the lake?" "How could the freezing of the water pipes be prevented?" "How could the cost be reduced?" A description of Mr. Chesbrough's plan is then read by the children. A model of the crib is made, and the system is worked out on the sand-table and represented on the blackboard.

Pupils work out sewage problem and reversing of Chicago River.—The children know that the proper disposal of sewage was still a troublesome question. They know that sewers emptying into the Chicago River had been laid. They see that the lake water could not be clean so long as the river, carrying this sewage, flowed into it. In order to show the children how the lake has been made to

sweep out the Chicago River, use is again made of the sand-table. The children build the Chicago plain and the westward slope. They trace the Chicago River and the Des Plaines and Illinois Rivers. They are helped to see that the land over which the Chicago River flowed must have had a gentle slope, although it appeared quite level. Such questions are asked as: "Into what did the Chicago River flow when Chicago was a fur-trading post?" "What was the condition of the water in the river at that time?" "How did the river later help to cleanse the city?" "What effect did this have upon the condition of the river water?" "Should we expect, then, to get pure water from the lake?" "In which direction do the Des Plaines and Illinois Rivers flow?" "How do you know?" "What prevents the Chicago River from flowing west too?" "How could this difficulty be removed?" Then the children read of the building of the drainage canal and its successful completion, and make the canal on the sand-table model.

Municipal control valued.—Thus, from the study of models and drawings, from reading and discussion, the children are led to a more definite understanding of the present complicated and efficient system. Attention has also been called to the advisability of municipal control of such a necessity as water, instead of allowing money-making concerns to assume control. Throughout the study of problems arising from the needs of many people living so close together, the ideas of personal helpfulness and responsibility are emphasized.

Each pupil makes a Chicago book.—When the study of Chicago is completed each child has his own Chicago book containing written descriptions, original stories, bits of dramatization, verses, sketches which were made in the art period, and pictures which he has collected as illustrations.

The following table of contents is copied from such a book, together with explanatory notes.

TABLE OF CONTENTS

1. Lake Michigan [a picture].
2. Before White People Came [written description].
3. Early Chicago [a map which was first made on the sand-table].
4. Making the Portage [a sketch].
5. Trading Posts [written composition].
6. The Indian Council [mimeographed record of dramatization].

7. Fort Dearborn [picture].
8. Building Fort Dearborn [written composition].
9. Why People thought Chicago would be a Big City [written composition].
10. Pack Horse [a sketch].
11. How Pioneers Traveled [written composition].
12. Prairie Schooner [a sketch].
13. How People travel Today [written composition].
14. Pictures of Street Cars, Trains, and Automobiles.
15. People whom Chicago Honors [mimeographed papers].
16. Chicago Harbor [map].
17. The Pioneer [verse].
18. Pioneer Times: the Country Store; Lighting; Heating and Cooking; the Mail; the Water Supply [compositions].
19. The Tunnel and Crib System [compositions and diagrams].
20. Purifying Water [written record of experiments].
21. Things which helped to make Chicago a Big City [written composition].
22. Beautiful Chicago [pictures].
23. Plan of the City. (**3a**: 424–427)

Growth of ideas of European and American history. Devices for vividness and connectedness.—After completing the study of the history of Chicago the pupils in the fourth grade begin a study of the European background of American history. Efforts are made by the teachers to present both European and American history vividly and connectedly by a number of devices somewhat similar to those used in the earlier grades, but involving more independent reading and study by the pupils, who are now prepared to read quite profitably. One of the most effective devices that are used is the composing and presenting of a historical play, like that pictured in the frontispiece. We may illustrate this practice by an example from the study of the European background of American history.

Composing and presenting a historical play. *Necessary research vivifies fusion of Roman and Teutonic civilizations in Britain.*—Our example from the European background of American history is taken from the fifth-grade study of English history, the topic being the fusion of Roman and Germanic ideals in

Courtesy of The University of Chicago Elementary School

MODELING THE HORSE OF TROY

A device used in the study of Greek life as one phase of European history

Courtesy of The University of Chicago Elementary School

SAXON VILLAGE MODELED IN THE SAND-PAN

Such constructions clarify and vivify historical ideas

the development of those factors that have become a part of our present mode of living. The pupils have previously acquired vivid notions of imperial Roman life and of the life of the German tribes. The heroes of the latter have been especially studied, such as Alaric, Clovis, King Arthur, Alfred, Harold, and William the Conqueror, and the Teutons have been shown as a physically strong, self-reliant, and virile people who made their own laws and chose their own leaders to govern them. Much of the needed information is secured through reference reading by the pupils in a variety of books that include stories of these heroes. Among these books are Eva Tappan's "Old-World Hero Stories," Howard Pyle's "King Arthur and his Knights," A. J. Church's "Stories from English History," Guerber's "Story of the English," Harding's "Story of the Middle Ages," and Haaren and Poland's "Famous Men of the Middle Ages."

From The University of Chicago Elementary School

BOY WARRIOR IN A PLAY OF MEDIEVAL LIFE

Much intensive study by pupils of medieval customs is involved in the preparation of this boy's part

The fusion of the Roman and Teutonic civilizations is taken up in the course of study and described in the following quotation:

Purpose to teach one of the most fundamental facts in the history of civilization.—The combining of German and Roman ideals . . . is brought out in the writing of a play which aims to show that as time went on, the invading Teutons learned from those about them many of the ideas, customs, and institutions of the Romans,

and that finally their conversion to Christianity served to link more closely the ideals of the old civilization and the physical vigor of the new. The purpose is to impress upon the children's minds, as Adams says, that "it is one of the most fundamental facts in the history of civilization that this was a union upon equal terms of German and Roman to form a new whole and to begin a new progress."

Writing the play. Pupils' interest centers in the heroic, but must study out details of conquest, settlement, and conversion.—In writing the play, the class chooses one of the favorite leaders of the barbarians as hero. Through class discussions there is formulated a general plan of what the play should disclose and what incidents best show the points to be emphasized. A tentative outline is drafted for a play, showing, for example, (1) the manner of life among the Saxons before their coming to Britain, (2) their entrance into Britain as allies and their settlement there as conquerors, and (3) their conversion to Christianity. The subject matter of each act is discussed by the class in detail, and passages giving information about all doubtful points are looked up in the various texts and read orally in the class. Later each member of the class writes out the speeches, action, and setting according to his own ideas. These are read, criticized, and used in the collaboration of the final draft made by the class.

Costuming and properties require picture study and designing. Competition and expression in performing.—After the play is written the problem of staging and costuming it for presentation at the school assembly becomes the center of interest. Pictures and charts dealing with German life during the period of the invasions are studied for details of costume and setting. . . . The rehearsing of the play is made a part of the expression work in English, where each child is given opportunity to try out the part he likes best. The cast for the final presentation, however, is selected by the vote of the entire class. Many of the properties are made by the children; others are obtained from the school costume box. Illustrations showing shields, weapons, helmets, ships, warriors, etc. and a cover design for the book of the play are worked out in the art period. (**3a**: 517–518)

Historical play-writing requires research and objectifies historical progress in successive scenes.—While the above account resembles in general the descriptions of the teaching processes

in the lower grades, it emphasizes for us especially the following points in giving vividness and connectedness to historical ideas: (1) the large amount of historical research, discussion, problem-solving, and clarifying of ideas that is necessitated in the accurate composition of a historical play; (2) the clarifying of ideas

Courtesy of The University of Chicago Elementary School

MEDIEVAL TOWN AND CASTLE MODELED IN SAND-PAN AS A HISTORICAL PROJECT

For the complete story of the planning and execution of this fifth-grade project see the author's "General Methods of Teaching in Elementary Schools," pp. 9–10

of historical change, progress, and continuity or connectedness through the organization and presentation of scenes typifying fundamental stages in a certain historical movement.

Five factors in teaching American history. *Large movements, geographical influences, adventure, problems, biography.* —Let us now take a long step in the progress of the pupils' historical ideas and use an example from the study of westward expansion in seventh-grade American history to illustrate five

further factors in the methods of teaching; namely, (1) emphasis on great movements instead of chronological detail, (2) connection between geographical influences and historical developments, (3) vivid interest in historical adventures, (4) the interpretation of historical developments through problem-solving discussions, (5) the effectiveness of typifying historical epochs in great strategic personal leaders.

Large movements. *Replace chronology of presidential administrations.*—Until recently it was common to study the history of the United States in terms of presidential administrations. The course of study consequently became a detailed chronology of events in which the largest unit was a four-year or eight-year period. Such an organization usually failed to interest pupils and failed to give them any adequate comprehension of the half-dozen great movements and developments in American history since the Revolutionary War. In contrast with the chronological hodgepodge of this older method we find the recent tendency to study our history in terms of a few great movements. One of these is commonly called "westward expansion." In the Chicago course of study which we have been describing, this movement is introduced in the following words:

> *Westward expansion a large unit in seventh grade.*—The great theme of the history taught in the seventh grade is the migration of the people across the continent from the narrow Atlantic coastal plain to the Pacific coast.
>
> *Conquest of Kentucky, Tennessee, and the old Northwest.*—The first part of the [course] deals with life on the frontier through a study of three men: Daniel Boone, the father of the Wilderness Road; James Robertson, the founder of Tennessee; and George Rogers Clark, who won the Northwest Territory for the United States.
>
> *Problems of development of the Northwest Territory.*—The second part is devoted to the development of the Northwest Territory, with the problems of its settlement, Indian relations, trade, and transportation.
>
> *Beyond the Mississippi.*—The third part is a study of the expansion westward from the Mississippi River. Here the main purpose

is to show the struggle of the North and South for the possession of the West, and the events which led to the Civil War. The last major topic is the crossing of the Rocky Mountain barrier and the settlement of the Pacific coast.

Transportation and immigration.—Through these studies the child gains enough experience to be able to summarize important developments in our history. He is led to the consideration of two of these especially: transportation and immigration. The course ends with a study of these two topics in their present relations. (**3a**: 563–564)

Large topic of American migration thus illuminates pupils' ideas of the whole nation.—These quotations bring us pretty close to the contemporary topics which we found in the weekly magazine at the beginning of this chapter on understanding contemporary social life. Contemporary transportation and immigration, which are represented in the current magazines, can be understood by the pupils who have been through this course of study in terms of the great American migrations and settlements of the nineteenth century. The study of American westward expansion as a great movement in American history thus becomes a center not only for interpreting many of the conflicts and problems of the nineteenth century but also for understanding the sectional differences of opinion that often prevail today and a host of other contemporary issues. Thus we see how the organization of the historical course of study in terms of large social movements is much superior to mere chronology for the purpose of giving pupils ideas that enable them to utilize their knowledge of past developments to interpret contemporary events and issues.

Geographical influences in history. *Illustrated by crossing of the Appalachian barrier.*—The second factor in modern historical study which we desired to illustrate—namely, the influence of geographical conditions—may also be brought out in connection with westward expansion, as shown in the following paragraph from that part of the course of study that concerns crossing the Appalachian barrier.

The first problem is why the Appalachian Mountains were a barrier to westward expansion. Pictures and maps are selected to show the characteristics of these mountains and are used in the projecting lantern so that the class as a whole can view them. Certain characteristics, such as the long parallel ridges and valleys, the water gaps, and the length and width, are especially noted. A study is made of the mountains from the pupils' geography text and Longman's Atlas. From the information thus gained the class is ready to solve the problem of why this range was a barrier and how the settlers would move in crossing it. (**3a** : 570)

Historical adventures. *Boone's adventures used to teach an important historical movement.*—Our third factor in modern historical study (noted on page 205) is the intense interest aroused in many persons by historical adventures. In the study of westward expansion there is much adventure material that can be used. My son, when beginning the seventh grade, and some of his friends devoured over a dozen volumes featuring the adventures of Daniel Boone, George Rogers Clark, and other great pioneers in the westward movement. From the standpoint of the cold-blooded, matter-of-fact historian the essential fact about these adventures is that they are really true—they are real history, and they truly represent the conditions and human struggles of the time. From the standpoint of the pupil the main point is that the story is so thrilling that he is almost afraid to look up lest he see an Indian sneaking in at the door. From the standpoint of the teacher the problem is to utilize the pupils' interest in Boone's adventures so as to get them to comprehend this pioneer not merely as an adventurer—for there were many adventurers of no importance—but as a great leader of a great migration over the Appalachian barrier into a land rich in the possibilities of cultivation and settlement.

Solving social problems of the past. *Devising transportation over the Allegheny Mountains.*—Our fourth factor mentioned on page 205—namely, problem-solving interpretation of historical developments—may be illustrated in the case of

westward expansion by a problem which I heard debated by a seventh-grade class in much the same manner as they debated the problem of increasing America's present sugar production (which will be described in detail on pages 280 ff). The history problem arose after the pupils had completed a study of the earlier settlements in the Northwest Territory. The account from the course of study may be paraphrased as follows:

> The next step is to solve the problem of how the frontier people were to get their products to a market. The New Orleans gateway, reached by flatboating down the Ohio and Mississippi, is suggested by the pupils as the natural outlet. But Spain owned New Orleans; hence what would the United States do? After discussing this the class turns to reference books to find the desired information. The discussion to this point consumes about one period.
>
> The question still remains, however, of connecting the East and the West, since the merchants of the Atlantic coast were particularly desirous of securing the trade with the West. The pupils make a variety of suggestions. For example, they suggest building roads across the mountains. Each road suggested receives criticisms from the class. After examining the maps for possibilities the historical facts concerning the building of the Cumberland National Road may be given by the teacher, or looked up later in the text by the pupils after they have discussed other possibilities. Suggestions by the pupils that canals be built lead to an examination of the maps to see where this might be possible. The pupils quickly center their attention on the eastern end of the Great Lakes and search for easy connecting places with waters that flow into the Atlantic. After they have exhausted their own resources the actual historical solution of the problem is found in accounts of the building of the Erie and Pennsylvania canals. Suggestions for the building of railroads are canvassed in a similar manner. (**3a** : 571)

Biography as historical material. *Lincoln typifies westward expansion and the Civil War.*—The fifth and final factor that is mentioned on page 205 is the enormous effectiveness of typifying epochs of history in the lives of great strategic personal leaders. As a connecting link between westward expansion and the Civil War the study of Lincoln exemplifies

such biographical study, as described in the following quotation from the Chicago course of study:

> Biography illuminates movements and periods as no other literature or form of history can. This is particularly true of the life of Lincoln, which is of great interest to children. Beginning with the Kansas-Nebraska Bill the Civil War is studied largely through Lincoln's life. The qualities of Lincoln endear him to the children from the start. His humor especially makes him a very lifelike character to them. The first part of the biography shows how the Lincoln family joined in the great westward movement. The harsh, forbidding side of frontier life becomes evident when the children see the struggle of this family against great odds. The other phase of the westward movement, slavery, is also shown by its influence on the Lincoln family. There was no place for the poor uneducated white in the slave state; therefore another migration took place, to the free territory of Indiana. From here on, the study is directed to find out the influences that molded Lincoln's opinions, especially his ideas about slavery, his views on the great political questions of that day, and, finally, his handling of the difficult problems during the Civil War. Most of the reading is done with these problems in mind. The child thus gets two aspects of the biographical study—the political and the personal. (**3a**: 572)

Adult tendency to symbolize history in great leaders: Lincoln.—Such a study of Lincoln by children closely parallels the general social interest in him that is manifested at the present time. It is likely that, as time goes on, Lincoln will become more and more prominent in the minds of people as typifying the great conflict period in American history, many of the details of which will be forgotten. The use of such biographies in making history vivid to children thus parallels one of the fundamental tendencies of the human mind in its effort to grasp, symbolize, and remember the great achievements of the past and to use them in thinking about problems of the present.

Review of progressive growth of pupils' social ideas. *From playing store to great national problems such as transportation and migration.*—This brings us to the conclusion of our

long Section III, in which we have pictured the progressive growth of pupils' ideas of human nature and social life through their studies of community life and history. In the first stage of the study we found the children of the kindergarten making excursions to stores and other typical features of the immediate environment and reproducing these through imitative play in the schoolroom. Next we saw them studying the farm as a source of food supply that is rather directly connected with their home life through the sale of farm products in the neighboring grocery store. In the next stage we found the pupils considerably removed in imagination from their immediate environment through a study of primitive methods of meeting human wants as exemplified in the hunting life of the Indians and the shepherd life of certain desert peoples. In their study of the Vikings the pupils then noted how a hardy people in a comparatively barren and difficult country met some of their needs by conquering the sea and ranging over it to distant lands. Finally, in their study of the development of their own city, Chicago, they saw the growth of complex city life of today from the simple frontier post established by hardy explorers and pioneers. After the fourth grade we followed the growth of the pupils' historical ideas from the European background of American history down to the study of recent problems of migration and transportation in the United States.

Only a few typical features cited from course of study; consult the whole.—It is important to keep in mind that we have touched upon the pupils' experiences at only a few spots in the progressive growth of their social ideas from the kindergarten through the seventh grade. The reader who is interested to examine the complete course of study (which covers some one hundred and fifteen pages) should consult reference **3a** at the end of this chapter. Moreover, it is important to realize that this course of study is not permanent, but is undergoing changes from year to year as American teachers learn more about the teaching of community life and history.

Course typifies progressive learning and teacher's devices. Psychological evaluation in next section.—In any case, however, no matter how the course changes in content, it will always, we hope, provide for the continuous, progressive growth of the pupils' ideas of social life and history, so that the ideas they acquire in each grade build a part of the foundation for the social thinking required later in the course. One of the chief reasons for choosing this particular course of study as the basis of this section was to give the reader a notion of such gradual and continuous growth of the pupils' ideas. The other reason for choosing it was because it describes the actual activities of the pupils in their processes of learning and the teacher's devices for stimulating and guiding these activities. These learning processes and teaching devices may remain much the same, no matter how the content of the course changes. To understand them is one of the chief needs of the teacher who would prepare pupils for a broad insight into contemporary social life. Consequently in the next section we shall summarize these devices and consider the psychological justification for their use in stimulating and guiding the pupils' learning.

Section IV. Evaluation of Methods and Devices used in Studying Community Life and History

Scope of section.—In this section we shall try to bring together the methods and devices described in Section III and evaluate them in terms of how pupils learn; that is, in terms of the psychology of learning.

Summary of methods.—The reader will probably remember that at the end of our description of the kindergarten course we summarized (on page 186) five of the processes used in that grade. Again, toward the end of the course of study, we described five factors in the teaching of American history. Just before this we described the work of pupils in writing historical plays. If we bring all these points together we get the

following list of the pupil activities that are used in studying community life and history:

1. *Observing* real social situations and materials, or pictures and models of these.

2. *Solving problems* arising from human needs, either as actually present in the pupil's experience or as imagined in the lives of historic peoples.

3. *Expressing* ideas of social needs or materials or processes through the following media:

a. Playful *imitating* of social activities.

b. *Constructing* miniature objects and situations.

c. *Drawing* maps, pictures, diagrams, and graphs.

d. *Describing* experiences, objects, and situations.

e. *Composing* and *presenting* historical plays.

f. *Discussing* problems that arise.

g. *Organizing*, *outlining*, and *reviewing* the outcomes of their experiences.

4. *Reading* in textbooks and supplementary books, including adventure-reading and historical research.

5. *Studying large movements* in history instead of chronological detail.

6. *Determining geographical influences* upon historical developments.

7. *Using the lives of great leaders* in social movements, to epitomize and symbolize great conflicts and developments.

Possibly a few other important practices might be added to this summary if we desired to make it complete. Furthermore, the organization might be improved. However, as it stands, the statement typifies fairly well the pupils' activities in progressive methods of studying history and community life.

Evaluation depends on desired characteristics of ideas of social life.—In making our evaluation of these activities and teaching processes we must keep in mind the aim of the type of learning which we are discussing in this chapter. As indicated in Section I, after we reproduced the topics discussed in a

weekly review to represent a cross section of contemporary life, we stated that our purpose is to give pupils ideas that will provide a broad, sympathetic insight into contemporary life and civilization. Section I gave us some notion of what these ideas are; Section II, the subjects in which they occur in school; and Section III, a picture of the progressive growth of many of the ideas as derived from elementary studies of community life and history. Before the chapter closes we shall need to get some understanding of how such ideas exist and operate in the pupils' minds and behavior. At present, however, we desire to avoid such an abstract psychological discussion; so we may merely suggest that in the case of the more important ideas which a pupil acquires we desire to secure the following qualities. These ideas should be

1. *Clear*; that is, well distinguished from each other by the pupil, and the meaning of each well grasped.

2. *Vivid*; that is, impressive, colorful, warm with the feeling of personal experience.

3. *Organized*; that is, associated with logically related ideas, with subordinate ideas held under larger ones, etc.

4. *Usable*; that is, ready to be applied in understanding and interpreting new experiences, solving new problems, etc.

5. *Recallable*[1]; that is, so deeply impressed and well connected with other ideas that they can be recalled when needed.

6. *Mobile*; that is, not merely clamped in one place or system, but freely associated and easily recalled in many connections.

7. *Modifiable*; that is, not hard and fast, but subject to modification from new experiences or data.

We might go on and add a number of other adjectives to the above list of characteristics and also explain more fully each of those given. Enough has been said, however, to suggest the fact that we are to evaluate our teaching processes and devices in

[1] See, however, page 257, for James's evaluation of experiences that we cannot definitely recall but which modify our attitudes and interpretations.

terms of the way in which they help to contribute some of the above characteristics to the pupils' ideas of social life. To understand how these characteristics are attained we must turn to a consideration of certain fundamental psychological processes.

Psychological processes in acquiring ideas. *Illustrated by a romantic maiden's ideas of "movie" hero.*—The fundamental psychological factors and processes involved in acquiring ideas may be illustrated by the following incident:

One day, in Florida, I was standing in an ancient grove of moss-hung oak trees watching a company of movie actors making a picture. The hero was one of the handsomest of the younger screen stars. He was nonchalantly riding a spirited horse in the scene that was being photographed.

A group of young girls from the neighborhood came running up. One, who appeared about thirteen years of age, was an attractive brunette of the Spanish type so common in St. Augustine. Upon spying the hero on his horse she cried: "There he is. Isn't he grand! I knew him the minute I saw him. I'm just crazy over him. I've seen him in every picture he's played in. I've read all about him in the movie magazine. I cut his picture out and put it on my dresser."

This outburst interested me particularly because, although I am something of a movie enthusiast myself, I had never paid any special attention to this handsome fellow or learned much about him. Yet here was a romantic young girl who knew all about him and seemed to rank him above all the other stars because of his appeal to her romantic interests. Certainly her ideas of him had many of the psychological characteristics which we noted above and which we should like to secure in giving children social ideas in school. If we examine her case for a few minutes, we shall discover the fundamental psychological processes inherent in acquiring ideas that are clear, vivid, recallable, etc.

Factors causing the girl's vivid ideas of her hero. 1. *A strong instinctive tendency.*—The first factor to be noted in this girl's

experience is her strong, instinctive romantic interest in a handsome, heroic member of the opposite sex. The fundamental cause of her noticing him and learning all about him was this particular instinctive tendency.

2. *Vivid personal experiences.*—The second factor in giving her clear, vivid ideas of the gentleman is the actual observation of him in person, either as shown on the screen or as actually present. It is interesting to note that the screen observations had given her almost as vivid an impression of him as could be gained from direct observation of his physical presence.

3. *Mental elaboration, attentive reflection.*—The third factor to be noted is the large amount of thought the girl gave to her hero. She read about him, she gazed at his photograph day after day, doubtless she dreamed of him and studied the movie announcements to see when she might again have a chance to view his handsome figure and graceful actions.

Three rules. *Instinctive appeal, vivid experience, attentive reflection.*—From this single example, then, we derive three principal headings under which we may group much of our discussion of the factors to be considered in giving pupils ideas of human nature and social life, as well as many other types of ideas. We may formulate these factors into rules for teaching, in the following words: In effectively teaching pupils ideas of social life we should

1. Appeal to or arouse some fundamental instinctive tendency, interest, or activity.

2. Provide first-hand personal experiences, with real objects, persons, and situations, or vivid representations of these.

3. Stimulate the pupils to elaborate and reflect upon their experiences from many angles and in many connections.

These rules have so many varied applications in teaching ideas of social life (as well as other ideas) that we shall devote a number of pages to explaining each rule and its applications. In doing this we shall be able to justify systematically most of the devices described in the preceding section.

Rule A. Arousing Instinctive Tendencies, Interests, or Activities

Meaning of instinct. *An inborn tendency to behave in certain definite ways.*—The young girl's instinctive interest in her handsome hero, which we described in the incident above, may be used to illustrate what we mean by an instinct. We called her interest and actions instinctive because she did not have to be *taught* to feel and behave as she did—she simply grew into it. Romantic interest in the opposite sex develops naturally in adolescence in a manner that leaves no doubt of its inborn, native, or instinctive character. The term "instinct" is used by psychologists to designate such inborn, or native, tendencies to behave in certain specific ways toward objects or persons; for example, the tendency of a young animal to run after an object that moves away from it and to run from an object moving rapidly toward it.

List of important instincts in teaching community life and history.—Among the human instinctive tendencies or instinctive complexes which are especially usable in teaching community life and history are the following:

1. Instinctive interest in adventure and romance.
2. Interest in actions and conversations of people.
3. Imitative play.
4. Physical activity and manipulation.
5. Collecting-instinct.
6. Curiosity and problem-solving.
7. Expression, or communication.
8. Competition, or emulation.

We shall take up the first two of these for special discussion.

1. **Adventure and romance abound in history.**—History is full of material that appeals to the instinctive interest in adventure and romance. We have already given one example of this fact on page 207, where we described the use of Daniel Boone's adventures to typify a certain phase of westward expansion. I have added the term "romance" because it is

possibly somewhat broader in its suggestion than adventure; for example, it may include such "romantic" interests as were exhibited by the young girl described above. Furthermore, even the derivation of the term "romance" is suggestive of great historical adventures, since, according to the dictionary, it was early used to designate legendary stories in the Romance languages; that is, the vulgar, or common, tongues, or vernacular, of the descendants of the Romans, especially in France. The stories of heroic knights, such as King Arthur, were especially typical. These great romances commonly included not only the heroic adventures of gallant knights but also the love-affair interest represented in combats for fair ladies. Such romantic-adventure stories have been of universal interest to both sexes —from the time of Homer, through the days "when knights were bold," down to the present. Some girls are as much interested in the fighting and adventure aspects as are the majority of boys. An example of such interest came to my attention recently when a mother said her daughter had just discovered the world of adventure books intended for boys and was now fascinated in devouring the stories. Many young girls, however, much prefer the love-affair element to the adventure feature. This is apparent in the story-books that are especially popular with girls. It is interesting to note that this element is strong in the great historic adventure stories such as those of the Homeric and Arthurian periods, as well as in the modern writings of Scott and Dumas. Hence, through using the broader term, "romance," while we may not be entirely accurate, we have tried to suggest the possibility of historical story material's being interesting to the romantic-minded girl as well as to the adventure-loving boy.

Tutoring a boy through historical fiction.—During recent years I had frequent occasion to select historical adventure books for my son, who was attending The University of Chicago Elementary School but was always absent during the winter, when I took my annual vacation of three months. He

is naturally a voracious reader of adventure material and had had the excellent training in history and general reading given in the above school. Our device for furnishing a substitute during the winter for the rich historical experiences which his classmates were having was to pile up historical reading for him. Some of this was systematic; for example, one winter we had him read rapidly three textbook accounts of the two topics that his classmates were studying at school—namely, westward expansion and the Industrial Revolution. From these we had him recite upon important subtopics. Such study, however, was no adequate substitute for the varied activities of the pupils as depicted in the course of study in Section III. To furnish something of this fuller historical experience we provided a number of books of historical stories. For example, upon the topic of westward expansion we bought from the textbook companies seven inexpensive volumes telling stories of the settlement of Kentucky, Ohio, the old Northwest generally, Texas, Oregon, and California, plus an excellent biography of Lincoln. In the field of standard historical fiction the boy read Churchill's "The Crossing," for pioneer Kentucky; Fox's "Little Shepherd of Kingdom Come," for contrasts of mountaineer life and bluegrass-plantation life in Kentucky; and Eggleston's "Hoosier Schoolmaster," for pioneer days in Indiana. Thus for a few dollars we were able to cover his school course rather fully with supplementary material that appealed to his instinctive interests in adventure and romance.

Novels. Cheap editions. Cooper for the colonial period.—However, for a voracious reader of twelve years of age these books are only a drop in the bucket. Hence, in order to keep him from spending too much time on a standard weekly magazine and other similar excellent fiction, we bought from the textbook companies or from such collections as Everyman's Library cheap editions of famous historical novels, no matter what period they covered. One year he devoured many of Cooper's novels. These happened to touch the period in American history that the

class in Chicago was studying—for example, "The Last of the Mohicans" touched the French and Indian War; "The Spy" and "The Pilot," the Revolutionary period.[1] We also brought in Scott's "Kenilworth," to give something of the atmosphere of English life during the period of Queen Elizabeth and Sir Walter Raleigh.

Dumas and Scott[2] *for the seventeenth century in France and England.*—The next winter we loaded up with Dumas's and Scott's stories of the seventeenth century. This period had already been covered in the boy's study of the European background of American history, but was reviewed and revivified by these stories. Dumas's "The Three Musketeers" and its sequel, "Twenty Years After," touch the periods of Richelieu, Mazarin, and Louis XIV in France and depict important relations with England. Scott's "Woodstock" is a story of the England of Cromwell's time, contemporary with the period of Dumas's "Twenty Years After." Cromwell and other important English characters appear in both stories.

Ghosts and secret passages thrill the boy.—The features of these stories which especially interest a boy may be inferred from the following remarks of my son. One day he said, "Gee, 'Woodstock' is getting exciting now—ghosts 'n' everything!"

[1] We realized that Cooper represents the ordinary, biased American view of the England of the eighteenth century, and suggested this to the boy. However, Cooper's view is no more extreme than that which prevailed in our ordinary texts until the World War. Moreover, his view is itself a historical phenomenon and illustrates vividly the general American temper of his day.

[2] Teachers who are familiar with the reading habits of adolescent boys will realize that this twelve-year-old boy enjoyed books ordinarily read by pupils at a later age. This was due to an unusual combination of favorable circumstances. However, the adventure interest which we are illustrating is common to upper-grade boys, and its expression in reading historical adventures is found in the enormous popularity, among such boys, of the historical stories by J. A. Altscheler (when these are provided in large public libraries). Such stories could be put to the same use as we put the works of Cooper, Dumas, and Scott in the teaching here described.

Later he said: "Jiggers, it would be fine to have a castle like that, with all kinds of secret passages. You could fake some of them. I mean you could build a door behind a big picture, but there wouldn't really be any secret passage there. Then your pursuers would waste time trying to open this door." Between these remarks, however, he said, "King Charles the Second has just come in."

Casual conversation brings out historical features.—Such remarks as that about King Charles are inspired by the only instruction which we attempted with these stories; namely, casual conversation, usually at mealtime. For this purpose I usually dipped into each book for a few points of contact, but did not read the whole. For example, in glancing through "The Three Musketeers" I noticed the names of many towns and rivers of northern France which had been made famous during the World War. I asked, "Did you notice the name of that town where the musketeers stopped while pursuing Milady?" referring to the town of Arras, where great fighting occurred in the war. This question led to a discussion of the boundary between France and Belgium; of the river Lys; of the efforts of Milady to seek refuge in a foreign country, Belgium; of the frequency of this practice of escaping into foreign countries; etc. Another example occurred in contrasting Cardinal Richelieu, who is the big French political leader in "The Three Musketeers," with Cardinal Mazarin, who was minister during the period which figures in "Twenty Years After." A discussion of this contrast was started by the question "What does Dumas think of Mazarin as compared with Richelieu?" Other questions were these: "Is Louis XIV in the story yet? . . . How old is he? . . . When will he be of age? . . . How old is he, then, when he begins to rule? . . . Does Dumas give any dates to show when these things take place? . . . What civil war was that in which the four friends divided?" The manner in which such questions, coupled with his previous school instruction, tend to focus the pupil's attention on historical facts and conditions,

is illustrated by the following remark volunteered at the supper table concerning Louis's great minister Colbert. "Say!" said the boy, "you know Colbert? His father was a wine dealer. It was unusual in those days for such a man to rise to prime minister." Then he hesitated a moment and said, "I'm not sure that they called him *prime* minister."

These examples illustrate the possibilities of using material that appeals to the instinctive interest in adventure and romance as a means of filling a pupil's mind with vivid historical ideas and feelings of meaning. We shall now turn to the second instinctive interest, or tendency, contained in our list.

2. **Instinctive interest in persons' actions and conversation.**—The instinct of gregariousness (that is, the instinctive tendency to flock with other people), when combined with certain other simple instinctive tendencies, gives us the tendency to be interested in the actions and conversation of other people. Common manifestations of this tendency are seen in the way children who can scarcely toddle will approach other children, gaze at them, fondle them, jabber at them, etc. Highly developed and cultivated outcomes of the tendency are shown in the delight that most readers take in the conversations in stories. To most human beings certain other persons are the most constantly interesting things in the universe (excepting only one's own person), and the actions and conversations of these persons are probably their most attractive features.

Personalizing history.—For this reason the more we can personalize history, the more hungrily many pupils will acquire historical ideas. One of the principal means of doing this is through vivid biographies of interesting people. Lincoln's biography, which we discussed on page 208, is an especially effective example of our point. Even "fictionalized" biographies, however, are useful, as shown in the attractive little stories of pioneer life such as "Hannah of Kentucky." I found from experience with my son that mere descriptions of pioneer conditions which lacked the individual personal element contributed by some real

or fictitious hero seldom held his attention. In a later connection (p. 228) we shall have occasion to refer to the value of such personalizing of history in giving reality to pupils' historical ideas. Here we are concerned with it as a means of appealing to the fundamental instinctive interest in the actions and conversations of people.

Other instinctive interests. *Discussed in "General Methods."* —Thus we have indicated in some detail how methods that appeal to a pupil's instinctive interest in romance and adventure and to his interest in the actions and conversations of people are effective in giving him ideas of social life that are vivid and impressive. It would be possible to treat similarly, in turn, each of the other instincts listed on page 216. I have already done this, however, with numerous examples and pictures in the chapter on interests in my "General Methods of Teaching in Elementary Schools," to which the reader is referred for further details. Such detailed accounts serve to impress upon us the importance of our first psychological rule for teaching pupils ideas of social life; namely, to appeal to or arouse some fundamental instinctive tendency, interest, or activity. One psychological reason why the methods and devices summarized on page 212 are so effective is because they do appeal to the instinctive interests of pupils in adventure and romance, in the actions and conversations of other people, in imitative play, in physical activity and manipulation, in collecting, in problem-solving, and in communication and competition. We shall now turn to our second rule, to discover a second explanation of the effectiveness of some of these devices in giving pupils ideas of social life that are clear, vivid, organized, usable, recallable, mobile, and modifiable.

Rule B. Providing Vivid Experiences

Psychological necessity of first-hand experiences.—The second rule which we derived from our example of the girl and her movie hero reads as follows: In effectively teaching pupils ideas of social life, provide first-hand personal experiences, with real ob-

jects, persons, and situations, or vivid representations of these. In the course of study described in Section III we found this rule illustrated by excursions to a grocery store, a bird store, and a botanical garden; by the examination of samples of weaving, Indian relics, and pictures of Indians and deserts; by the making of butter; by the construction of sand-pan models of Scandinavian fiords and feast halls; by the study of maps of the Appalachian barrier; by the acting and observing of historical plays; etc. After such vivid personal experiences are provided they may be used to build up an elaborate structure of ideas through discussion and reflection, as will be described later under Rule C. The psychological necessity of beginning with actual personal experiences is one of the oldest of pedagogical principles and has been emphasized by all educational reformers from John Locke (1632–1704) down to the present. Thus Professor Dewey says:

> A blind man can never have an adequate understanding of the meaning of color and red; a seeing person can acquire the knowledge only by having certain things designated in such a way as to fix attention upon some of their qualities. . . . [Such experiencing] is required for all sense qualities—sounds, tastes, colors—and equally for all emotional and moral qualities. The meanings of honesty, sympathy, hatred, fear, must be grasped by having them presented in an individual's first-hand experience. . . . However advanced the person is in knowledge and in scientific training, understanding of a new subject, or a new aspect of an old subject, must always be through these acts of experiencing directly the existence or quality in question. (**22**: 132.)

Pupil's progress from first-hand experience to symbolic representation.—In reviewing from this standpoint the devices used in the course of study, we should note particularly the progressive transition of the pupil's ideas from those of his immediate environment which he has derived from first-hand observation, up through those derived from pictures and other forms of representation, to those derived merely from vivid verbal descrip-

tions. In the higher grades we found the pupils getting many of their ideas merely from reading, but supplementing the latter, wherever necessary, by some more tangible or vivid experience in order to clarify the ideas. For example, when the seventh-grade class was studying the Appalachian barrier to westward migration, most of the pupils had no clear notion of these mountains, with their long valleys down which the settlers could move through western Virginia and Carolina into eastern Tennessee and Kentucky. To clarify the situation, the teacher used pictures, relief maps, models in the sand-pan, and other sources of experience which more closely resemble the visual reality than do the mere words "mountains," "valleys," "gaps," etc., that are contained in the verbal descriptions.

Classification of activities and devices for giving vivid experiences.—The activities and devices which are used to give such vivid personal experiences we may classify into three main divisions, as follows:

I. Observations of real or pictured or modeled or dramatized situations.

II. Imitative reproduction.

III. Listening to or reading vivid descriptions and narratives.

We shall note briefly the possibilities under each of these main types.

I. **Observations.**—Under this division we find the following possibilities:

1. *Excursions* (*a*) to the actual total social situation, such as a grocery store in operation, or (*b*) to a replica of the situation as set up in a museum. Excursions to points more than a few blocks from the school are difficult to organize, but the vividness of the experience, when properly prepared for, often justifies considerable trouble in their organization. For example, among the most vivid recollections which I have from my high-school days are those of excursions to a gas works, a soap factory, and a tannery, the chemical processes of which we had studied in our chemistry class preparatory to the visits.

2. *Motion pictures.* The tendency to use motion pictures in school has attained great momentum in recent years. Many schools are now equipped with projecting machines, and educational films are being manufactured especially for school circulation. Educational experiments are being organized to determine the most effective technique of using a motion picture in teaching, since the mere observation of it may not produce the full educational result that we desire. It is obvious, however, from observation of the travel pictures and other educational pictures that have been used in the commercial motion-picture houses, that these furnish a very lifelike source for vivid experiences of scenes in foreign lands, of manufacturing and agricultural processes, of battles, of country scenes for city children and city scenes for country children, etc. Historical plays, such as Griffith's wonderful "Birth of a Nation" and "The Fall of Babylon," enable the spectator to live in the observation of a scene with almost the same degree of visual and emotional reality as would be experienced in witnessing the actual events. For a scientific discussion of the problems needing investigation in the educational use of motion pictures see reference **24** on page 262.

3. *Historical plays on the speaking stage.* The large possibilities of this kind of observation are illustrated by the profound effect of Drinkwater's great play "Abraham Lincoln" upon audiences. For example, one of our leading writers about Lincoln, who already knew his life very intimately, was so affected by this play that he sat for some minutes after the final curtain, overwhelmed with emotion and oblivious to the departing audience. I think that the most vivid impression that I have of the characters in our early American history I obtained from viewing the drama "Hamilton," played by George Arliss, in which the vigorous Hamilton, the dignified, democratic Jefferson, and the truculent James Monroe moved and talked before me for two hours. Even the little dramatizations which I have seen pupils in the elementary school present in their morning assemblies have enriched my historical knowledge—particularly one

in which I observed a seventh-grade class stage all the debates concerning slavery that occurred in our American national assemblies from the Revolutionary times to the Civil War.

4. *Objects and models.* In well-equipped elementary schools a school museum provides, for use in the classrooms, collections of clothing and utensils of various peoples and tribes, objects showing various industrial processes and products in various stages of manufacture, such as cocoa, coffee, cork, cotton, wool, silk, leather, paint, rubber, etc.

5. *Ordinary "still" pictures.* In this connection the textbooks in recent years have shown great progress and now include instructive photographs of places and processes in all parts of the world, cuts reproduced from old newspapers and other historical sources, and even full-page colored pictures that quickly rivet the pupils' attention. In the kindergarten and primary grades we find large colored wall pictures representing scenes on the farm, or among the Indians, or on the desert, etc. Some teachers are particularly resourceful in gathering and mounting pictures from many sources, including magazines, railroads and steamship companies, standard picture collections, etc.

6. *Drawings, maps, and diagrams.* These may vary from the simple diagram of a farmyard, used in the first grade, to elaborate diagrams of the campaigns of our Revolutionary and Civil Wars, used in the seventh and eighth grades. It is important to notice that a diagram is often clearer than a more complete picture, because the former selects for emphasis just the features which we desire to impress upon the observer, while the picture by its very completeness may distract attention from these essential features.

Summary of observational activities.—Thus as sources for observations to give pupils clear and vivid experiences we have described (1) excursions, (2) motion pictures, (3) historical plays on the speaking stage, (4) objects and models, (5) ordinary "still" pictures, (6) drawings, maps, and diagrams. We shall now turn our attention to the second main group of

activities and devices to give vivid personal experience; namely, imitative reproduction of social situations.

II. **Imitative reproduction.**—In our course of study as described in Section III we found the pupils' imitative reproduction of social activities to be a very frequent form of experiencing. We may divide their imitations into two main classes, as follows:

1. *Exact reproduction of social activities, in miniature.* Good examples are the actual making of butter; the actual dyeing of woolen yarn with dyes made from cranberries, spinach, etc.; and the actual weaving of a miniature rug.

2. *Playful representation of social activities.* For example, in playing grocery store in the kindergarten, there was not actual buying and selling, but merely a playful substitute. Nevertheless the practice in constructing shelves, stocking them with cans and boxes, and making purchases with paper pennies, nickels, and dimes sufficiently resembled the real social processes to give the pupils vivid educative experiences of social activities. Similarly, when the fifth-grade class dramatized the fusion of Roman and Teutonic civilizations, they did not experience the real feelings of conflict, religious zeal, lust for power, responsibility for results, etc. that were felt by the Romans and Teutons; nevertheless the experience of endeavoring to dress, behave, and speak like Cæsar or Charlemagne or some other hero tended to increase the pupils' appreciation of the reality and characteristics of such a personage.

III. **Vivid descriptions in language.**—In the two sources of vivid experiences described so far—namely, (I) observations and (II) imitative reproduction of social activities—there was frequently contact with the reality itself or something that closely resembled it. From such experiences and reflection upon them pupils accumulate a stock of ideas and meanings which may be revived and reconstructed through the use of language so as to give new ideas that are sometimes as vivid and impressive as the original experiences with the actual realities. Interesting examples of this process of vivid representation through

language are found in the effectiveness with which great novelists and dramatists depict their characters. Thus a character in a book, through the completeness and intimacy of the story of his life, may become more real to the reader than any actual person he knows excepting himself. An ideal example is found in the skill with which Dumas makes his great hero D'Artagnan, of "The Three Musketeers," live in the minds of his readers. Concerning this romantic figure Robert Louis Stevenson is quoted as saying:

> I do not say that there is no character as well drawn in Shakespeare; I do say that there is none that I love so wholly. No part of the world has ever seemed so charming to me as these pages; and not even my friends are quite so real, perhaps quite so dear, as D'Artagnan.[1]

If our writers of schoolbooks could make social life as vivid to pupils as Dumas has made D'Artagnan and his adventures, our texts would be model sources for providing vivid experiences through the skillful use of language.

Summary of Rules A and B for giving pupils insight into social life.—Thus far we have considered two of our psychological rules for giving pupils ideas of social life; namely, (*A*) appeal to or arouse some fundamental instinctive tendency, interest, or activity and (*B*) provide first-hand personal experiences, with real objects, persons, and situations, or vivid representations of these. The activities and the devices for carrying out Rule B we described under (I) observations by means of (1) excursions, (2) motion pictures, (3) historical plays, (4) objects and models, (5) ordinary "still" pictures, (6) drawings, maps, and diagrams; (II) imitative reproduction through (1) exact reproduction of social activities, in miniature, and (2) playful representation of social activities; (III) vivid descriptions in language.

[1] Quoted in the introduction to Everyman's edition of the "Vicomte de Bragelonne."

The carrying-out of Rules A and B assures the partial attainment of our aims in endeavoring to give pupils social ideas that are clear, vivid, organized, usable, recallable, mobile, and modifiable. Much greater success, however, will be assured if we carry out also Rule C, to which we shall now turn our attention.

Rule C. Stimulating Attentive Reflection upon Experiences

Psychological characteristics that are especially secured by reflection.—The third rule that we derived from the example of the romantic girl and her fascinating movie hero was worded thus: "Stimulate the pupils to elaborate and reflect upon their experiences from many angles and in many connections." We can see the value of this rule if we recall the seven characteristics which we desire to impart to pupils' ideas (as listed on page 213) and then notice which of these are especially contributed by applying Rules A and B and which are especially affected by Rule C. It is likely that the first two characteristics —namely, that ideas should be (1) *clear* and (2) *vivid*—are especially contributed through providing the instinctive appeal and vivid experiencing required by Rules A and B. It is likely that Rule C, which requires attentive reflection upon experiences, not only aids greatly in clarifying the pupils' ideas, but also especially contributes to securing the remaining characteristics; that is, through attentive elaboration and reflection upon their experiences, the pupils' ideas will become (to repeat the description and numbering used on page 213) (3) *organized* (that is, associated with logically related ideas, subordinate ideas held under larger ones, etc.); (4) *usable* (that is, ready to be applied in understanding and interpreting new experiences, solving new problems, etc.); (5) *recallable* (that is, so deeply impressed and well connected with other ideas that they can be recalled when needed); (6) *mobile* (that is, not merely clamped in one place or system, but freely associated and easily recalled in many connections); (7) *modifiable* (that is, not hard and fast, but subject to modification from new experiences or data).

How devices stimulate reflection. *Use of problem-solving and expression.*—If we will now turn our attention to the pupils' activities and the teachers' devices described on page 212, we shall see that several of these are especially valuable because they do stimulate and require the attentive reflection upon experiences which Rule C calls for. In evaluating each device from this standpoint, we try to see how it does make the pupil recall his ideas, turn them over, examine them from different angles, test them, modify them, rearrange and organize them, etc. We shall find that two of the major activities which we outlined—namely, problem-solving and pupil expression—are particularly valuable for these purposes.

Problem-solving. *Clarifies, organizes, and freely associates ideas.*—Examples of problems which occurred in the course of study described in Section III are the following: In the kindergarten (as described on page 185) the children, while constructing a play store, were required to plan their store and its contents, from the largest features, such as walls and windows, down to the smallest articles, such as vegetables, fruits, baskets, money, etc. In the fifth grade, while writing a historical play, the pupils were required to decide what situations they wanted to represent, to search for descriptions of costumes, to suggest action and dialogue, to reject unsuitable parts, etc. In the seventh grade the pupils were required to infer the course that migrations would take over the Appalachian barrier, to explain the reasons for each route, to devise means of transporting goods between the old Northwest and the Atlantic-coast states, etc. The reader will readily see that such problems require the pupils to reflect very extensively and carefully and to examine each situation and suggestion from many angles. In our next chapter we shall describe at great length examples of problem-solving lessons and the technique of conducting them. Here we are concerned merely to note that such lessons furnish one of the most important forms of mental activity needed by pupils in order to clarify and organize their ideas and to associate these

in many useful connections so that they may be easily recalled and used when needed in school or after graduation.

Pupil expression. *Many varied activities included.*—Most of the remaining devices for stimulating pupils to reflect upon their experiences fall under the general head of pupil expression. As listed on page 212, the various forms of expression included the following:

1. Playful imitating of social activities.
2. Constructing miniature objects and situations.
3. Drawing maps, pictures, diagrams, and graphs.
4. Describing experiences, objects, and situations.
5. Composing and presenting historical plays.
6. Discussing problems that arise.
7. Organizing, reviewing, and outlining the outcomes of the pupils' experiences.

How expression forces one to refine one's ideas.—The value of such expressional devices in stimulating pupils to clarify and organize their ideas is easily seen when we recall how our own efforts to explain or to draw or construct something have revealed to us our ignorance and forced us to correct it. For example, suppose you try to describe or to draw or to model the Great Lakes. In doing this many persons will find that they do not know whether Lake Superior flows into Lake Michigan or vice versa, or whether one or the other or both flow into Lake Huron. Others will find that they do not know whether Niagara Falls is near the eastern end of Lake Erie or of Lake Ontario. In general, if you will undertake any activity that requires you to express ideas, you will find that you are forced to refine and organize the latter in many ways, and you will often be surprised to discover enormous gaps in your knowledge and uncertainties in your impressions and ideas.

Progressive schools use many expressional activities to develop pupils' insight.—This fact, that expression of ideas is one of the best devices for clarifying and organizing them, has led to the very extensive use of many forms of expression in the teach-

ing of history and community life in elementary schools. In a later chapter we shall discuss such expressional devices from the standpoint of giving pupils skill in communicating ideas to an audience. Here, however, we are concerned merely with the manner in which such expression aids in acquiring insight into social life.

Imitation and construction in primary grades; more abstract expressions in higher grades.—In the kindergarten and primary grades the forms of expression that are especially emphasized in acquiring insight into social life are playful imitation of social activities, manual construction, discussion, and description. As the pupils advance through the grades we find increasing emphasis on language expression and upon drawing, diagraming, and graphing. The language expression includes the oral discussion of problems, outlines for oral and written descriptions and narratives, and the composition of historical plays. All these forms of expression are important as devices for stimulating pupils to reconstruct, elaborate, clarify, organize, and freely associate their ideas of social processes, activities, and relations.

Conclusion and summary of Section IV.—This brings to an end our rather long Section IV, entitled "Evaluation of Methods and Devices used in studying Community Life and History." In beginning our evaluation we first summarized the devices used and then indicated that the value of each device depends upon its effectiveness in making pupils' ideas of social life clear, vivid, organized, usable, recallable, mobile, and modifiable. From the example of the girl and her movie hero we inferred that the psychological processes needed for this purpose are (*A*) strong instinctive appeals, (*B*) vivid personal experiences, and (*C*) mental elaboration and attentive reflection. Each of these processes was then used to explain the effectiveness and justify the use of many of the devices included in our list. From the whole section the reader should derive the general impression that fundamental psychological laws justify progressive elementary schools in their use of methods that appeal to

the pupil's varied instincts, give him vivid personal experiences, and stimulate him to elaborate, reconstruct, test, modify, and organize his ideas of social life as a means of cultivating his insight into contemporary civilization.

Section V. Devices for securing Social Insight through Geography, Fiction, Arithmetic, and Applied Science

A few examples to be described.—You will recall that in opening this chapter with a cross section of contemporary social life as represented in the contents of a weekly review, we found that the topics contained would be discussed in school in the following subjects: community life and history, geography, fiction, arithmetic, and applied science. Since we have completed in Sections III and IV the discussion of methods of teaching the first two of these subjects, it would now be in order, if space permitted, to give a similarly full discussion of the devices to be used in teaching geography, fiction, arithmetic, and applied science so as to increase the pupil's sympathetic insight into contemporary civilization. We have not space for this full treatment, however; hence we shall merely give a few examples of devices and practices and suggest that their psychological justification will be found in the way in which they appeal to pupils' instinctive interests, provide vivid personal experiences, and stimulate attentive reflection according to the principles developed in Section III.

A. *Geographic Devices for giving Insight into Contemporary Civilization*

Example. Fifth grade's study of British Isles.—We may illustrate progressive methods of teaching insight into social life through lessons in geography by describing the study of the British Isles as pursued by a fifth grade in The University of Chicago Elementary School about 1917. Before the pupils

reached this stage in their work, they had acquired considerable familiarity with the lives and customs of different peoples, such as the Indians, Arabs, and Vikings, and had studied thoroughly the development of the Chicago region (as described on pages 194–200). Furthermore, they had learned about the earth as a globe, had located upon it the historic peoples of whom they had learned, and had spent several months in studying North America.[1] With this background they proceeded to the study of the British Isles, as described in the following quotation from the course of study for 1917:

Main problem. Geographic causes of Britain's leadership.—In this unit of study the work centers about the question, Why do the British Isles lead the world in manufacturing and commerce? The physical wall map and Longman's "Atlas" are studied for data upon the problem. Such questions as the following are given to develop the advantages or disadvantages due to location, climate, surface, and other natural resources: Where are the British Isles with reference to Europe? to America? How does their location aid or hinder manufacturing? commerce? Is the coast regular or irregular? long or short? What are the possibilities for good harbors? Where are their harbors? Are there many rivers? Name them. How may they aid manufacturing? commerce? Where are the highlands? lowlands? What is probably the leading industry in these sections? What mineral resources aid manufacturing and commerce? What are some of the other conditions that favor these industries? Which of these conditions have been found in the British Isles? The topics "climate" and "rainfall" are developed in a similar way to show how these factors aid the life of the country. Reference to the appendix of the text brings out a comparison of the area and population with that of Illinois and the United States and shows that though the area is less than twice that of Illinois the population is about half that of our whole country.

Inferences.—From the foregoing preliminary study such inferences as the following are made and written upon the board:

[1] See the author's "General Methods of Teaching in Elementary Schools," pp. 117–119, for a description of the methods used in studying North America.

England is engaged chiefly in

1. Manufacturing, because of its probable wealth in coal and iron and its lack of large farm lands.

2. Commerce, because its small area and great population make it necessary to import food and raw materials.

3. Oceanic shipping, because it must reach other nations by sea; to do so its merchant marine and navy seek to hold first place upon the seas.

Research for verification.—These and many similar inferences are made the basis for much reading and sifting of the text, the supplementary readers, magazines, newspaper clippings, travelers' guides, and government leaflets. As each inference is verified and elaborated it is summed up in a written exercise illustrated by drawings, maps, or charts.

Devices for studying the coal and iron industries.—The various manufacturing and allied industries are studied somewhat in detail. A trip to the Field Museum gives an opportunity to examine models of coal and iron mines and the series of models showing the methods of smelting iron ore. Drawings of the former are made, and a simple cardboard model of a blast furnace is constructed. A visit to the high-school foundry and machine shop shows the melting and molding and the making of iron goods. A list is made of our iron, steel, and other metal wares bearing English trademarks, including such things as knives, scissors, needles, pins, skates, hatchets, swords, buttons, screws, and rifles. Most of these come from the Birmingham district. Maps are made showing the relation of the coal areas to the iron and steel centers. England's rank among the coal and iron nations is found and its significance is discussed.

Shipbuilding. Devices in composition and literature.—A part of Great Britain's iron and steel is used in making great ocean vessels, for the British Isles build almost one half of the world's yearly output. Pictures of ships are collected; the shipbuilding industry of such cities as Belfast, Glasgow, and Edinburgh is studied. Longfellow's "The Building of the Ship" and Kipling's "The Ship that found Herself" are read in the literature period, and a series of lessons on this topic are worked out in the English-composition periods.

Textiles. Personal and historic background.—The study of the manufacturing of textiles in Great Britain is next taken up. Various

commercial textiles have been studied in the handwork classes. The pupils have scoured, carded, spun, dyed, and woven wool into cloth. With this concrete experience as a background a study is made of the cotton, woolen, linen, and silk industries of the British Isles. While the manufacturing of each of these textiles is studied in detail, the following topics give the order of development:

English Colonies and Other Regions producing the Raw Material.

Location of Manufacturing Districts with Reference to Coal Regions; with Reference to Seaports.

Important Cities engaged in the Textile Industry.

Kinds of Cloth Made.

Amount of World's Supply Produced.

Reasons for Britain's Supremacy in Textiles.

This last topic is developed somewhat in detail in the history course in connection with the introduction of the Flemish weavers into England during the reign of Edward III; the extension of sheep-farming following the period of the Black Death, when landholders, unable to cultivate or dispose of their lands, turned them into sheep pastures; and the growth of textile manufactures under the domestic, guild, and factory systems.

About eight lessons are devoted to the topic "The Textile Industry" at this time, but later, in studying the industry in France, Germany, and Belgium, the main points are again briefly reviewed.

Pottery.—In teaching the manufacture of china and porcelain the method is similar to that described above. It may be added, however, that a trip is made to the school pottery department, where the whole process is seen—mixing the clays, casting, molding on the potter's wheel, glazing and firing in the kiln.

World commerce.—The last large topic is "Trade and Transportation." While England has numerous rivers and a close network of railroads and canals that aid her internal trade and facilitate the transportation of goods to the seaboard, these make but a small link in the chain of transoceanic routes with which Great Britain has girded the earth. Every yard of goods or pound of steel made for export must be transported overseas to her markets. In this connection attention is called to her many good harbors, her facilities for loading and unloading, the Manchester ship canal, and the steamship routes to the markets throughout the world. The colonies are indicated on outline maps, and lists are made of the goods

sold to the colonies and of those brought back to the mother country to balance the trade.

Notebook organizes answers to main problems.—Throughout the study of the British Isles repeated reference is made to the main problem, Why do the British Isles lead the world in commerce and manufacturing? The salient points bearing on the problem are now organized, and oral and written summaries are made. Before completing the study of the British Isles each child compiles a book in which he places his written exercises, drawings, maps, charts, pictures, magazine articles, newspaper clippings, and other data covering the essential points of interest.

Interpretative basis for other countries.—In general the other leading countries of Europe are studied in much the same way, though less time is given to each than to Great Britain. More time is given to the latter in order to develop a geographic background for the history course of the grade and to organize in detail topics used repeatedly in the remainder of the course. Such topics as relations of climate and surface to industries, type industries, and requisites for good harbors furnish data for the study of other countries. (**3b**: 117–120)

General characteristics of methods used.—With these concrete examples of geographic devices in mind we can readily appreciate the following general statement of the methods used in fifth-grade geography as quoted from the course of study:

Methods based on pupils' interests.—Interests characteristic of fifth-grade children have in a large measure guided the selection of the subject matter and the method of presentation.

Interest in "Why?"—Interest in the "why" has necessitated the emphasis on the causal relation. The children, while still retaining a fondness for the story of a people, no longer accept it unquestioningly. They constantly ask: "Why is it so?" "Why do one half of Canton's people live in boats?" "Why is China so crowded when she has so much room?" "Why doesn't she work her coal mines?"

Problem method.—Interest demanding a sustained effort in following out the steps in the solution of a problem determines in general the method of approach to the study of the different countries. In such problems as Why has Great Britain become the leading

manufacturing country of the world? or Why is Japan becoming the Great Britain of the Far East? the children show a keen interest in organizing step by step the geographic factors that control the manner of life among the people and that explain why their ambitions are like or unlike those of other nations. The problem method necessitates the extensive use of books and maps; hence considerable attention is given to teaching the children how to study these in gathering and organizing data.

Collections and organized pasted books.—Interest in collecting is strongly characteristic of this age of the child. The interest leads to the collecting of all sorts of material, such as pictures, maps, pamphlets, products, railroad and steamship folders, and excerpts from magazines and books. The interest is utilized as a determining motive for the pupil in compiling a book containing written exercises, maps, drawings, pictures, and clippings that bear upon the problem studied.

Concrete beginnings.—In considering each of the leading countries of Eurasia a preliminary survey is made of the people by means of pictures, lantern slides, museum material, accounts of those who have visited the country, and stories recalled from reading and earlier studies.

Discovering a principal problem.—During the introductory lessons a problem is discovered or suggested, the solution of which gives a definite motive for considering the important geographic factors that influence the conditions of the life of the country. (**3b**: 116–117)

Details of actual lessons.—It is obvious from these quotations that in progressive methods of studying geography we find provision for the same psychological processes as we discovered in our study of the devices used in teaching community life and history; namely, strong instinctive appeals, vivid personal experiences, and attentive elaboration and reflection by the pupils. In order to secure a more detailed impression of what actually goes on in the classroom, we may examine the following concrete examples of a few lessons[1] which were taught by Miss Edith Parker in The University of Chicago Elementary School:

[1] I am indebted to Miss Eula Sleeth for the descriptions of these lessons.

Practice in using intellectual tools.—The devices which are especially illustrated by these lessons include practice in (1) map-reading, (2) picture-reading, and (3) graphing. Incidentally they illustrate several other phases of geographic teaching. In the next chapter we shall give two additional lessons to illustrate problem-solving in geography.

Fourth-grade practice in map-reading.—The lesson illustrating map-reading was observed in the work of a fourth-grade class that had just begun the study of Greece.

Preparation.—The lesson opened with a discussion of certain matters concerning Greece with which the pupils were somewhat familiar and which provided the desired setting and approach for the practice in map-reading.

The challenge.—The teacher then said that she was going to ask the class to do something which would really be difficult, even for the older pupils, but that she felt sure they could do it, because they had shown such excellent thinking ability. Everyone was at attention and eager to prove that her confidence was not misplaced. A colored contour map of the Mediterranean region was displayed, and its coloring was explained by using portions of countries studied before taking up Greece.

Asking the map two questions.—The teacher said: "I am now going to let you ask the map two questions—'Is it high or low?' 'Is it rough or smooth?' Look at it carefully, and, when the map has answered you, come and tell me what it says." She then seated herself some distance from the class. One by one the children skipped up and whispered to her. "Good," she said to one. "Yes, you have seen one thing, but look again, for you haven't heard the map's answer to the second." Or, "Do look again, for you haven't heard the answers." Children thus addressed went back to the map. The class as a whole were commended and were told that this was called "reading a map." "Reading without words," commented one little girl. The class decided it was great fun.

Interpreting Greek islands.—Attention was then called to the islands near Greece, and the teacher spoke of them as "stepping-stones" and asked what the islands would tempt the Greeks to do. "Build boats," said the class. Then it was brought out through discussion that as islands stretched on and on, the Greeks would be tempted to go farther and farther and improve their boats; that they would become traders and colonists. The teacher asked whether any of the class knew the parts of the Bible called Ephesians, Philippians, etc., and explained their connection with the Greek colonies. The idea of the Greeks' being merchants was reëmphasized, and then the discussion centered around the Greek fruit and confection stores in Chicago. These two things, "fruit and confections," were shown to be the special commodities in which they deal. The class was told that many Greeks come to this country and become good citizens.

Practice in reading pictures.—Training pupils to secure geographic information from pictures is illustrated by the fourth-grade lesson described below. It occurred on the day following the map-reading lesson (described above).

Review.—"What questions did we ask the map on Friday?" queried the teacher, and thus introduced a review of the surface of Greece, followed by points learned concerning her trade.

Inferences from pictures.—A picture of the Acropolis was shown, the children in their discussion bringing out the fact that its ruins seemed to signify age. When the stadium was shown, the teacher asked that they notice what the picture told about the country. Noting the hillsides where the seats were built, they recalled that the map had told of uneven ground. A picture of a mountain was introduced, with the question "What does this tell that the map did not tell you?" "It tells of steepness, which the map did not," said one. Another: "It tells that the mountains are rocky." "It tells that people live chiefly in the valleys," was suggested by another illustration. A picture of sheep evoked a discussion of grazing, while another showed

"farms in valley floors." One which showed fruit trees caused the teacher to suggest that the fruits were the same as those in Palestine, only in greater abundance. As olives, figs, grapes, and other fruits were being named, she said, "I wonder whether you are beginning to see the connection between this topic and one we had yesterday." "Yes—why the Greeks are fruit merchants," said a boy, with great pleasure at being able to see the relation. A picture to show how the coasts have helped Greece a little showed men fishing, while one of goats called forth from the teacher the question "In valley or mountains?" Stereograph slides were then given to the class. Four were of Greece, and the class was asked to look for new things which these would tell of the land or its people.

Graphing Japan's imports.—Practice in using graphing as a technical tool for studying social life is illustrated by the following lesson from a fifth grade:

Exports reviewed.—"When we worked on the export map of Japan what did you find was the greatest export?" asked the teacher. The class replied, "Raw silk." "Did they need to bring in anything to produce the raw silk?" was the second question, to which the class said, "No." "What was the next important export from the standpoint of value?" "Cotton yarn." "Did they need anything for this from some other country?" "Raw cotton," answered the class.

Directions for cotton imports.—The teacher then asked the class to take out their graph books and dictated, "Leaving one large square at the bottom, count up ten large squares." The pupils did this, outlining the squares so that a narrow vertical column was shown. This was explained as representing the amount of raw cotton shipped into Japan from other countries. Questions brought out the fact that India as well as the United States is a great cotton-growing country, and that, India being nearer to Japan than the United States is, more cotton would probably be secured from India. The teacher then dictated: "Count up seven squares on the ten already marked off. Label

this to show that it is India's share to Japan." "Two large and two and one-half small squares will be sent from the United States, and the rest from China."

Other products represented.—By following similar directions other products, such as oil cake, machinery, pig iron, etc., were represented in the graph. In the case of oil cake several minutes were spent in discussing its nature and utility before drawing the column to represent the amount imported.

Planning an assembly program on Japan.—As a final picture of actual classroom activities in teaching geography we shall give descriptions of two lessons in which this fifth-grade class was engaged in the preliminary planning of a program to be presented to the assembled classes at the opening morning exercises of the intermediate grades.

First lesson. Pupils suggest suitable points for presentation.—The class was reminded by the teacher that they were to plan an assembly program. She suggested that they take five minutes to think it over, each jotting down points which would offer a basis for a good discussion, keeping in mind their audience and choosing topics which would interest both sixth-grade and fourth-grade pupils. After the allotted "thinking" time was finished, Mary suggested the topic "How the sea has helped Japan," adding: "I think there should be five topics under this, one person to talk about each. Have the first 'Protection' and let somebody tell the story of Kublai Khan." "Fishing" was next proposed, and after discussion the class decided on the following subtopics: (1) "Warm and cold currents"; (2) "What is done with the fish—dried, used as fertilizer," etc.; (3) "Methods of catching fish—nets, cormorants, trawlers, drifters, whalers"; (4) "Diet—menu." One pupil then said that "Farming" should certainly be on the program, and the class voted to have two subjects discussed under this heading; namely, "What they raise" and "How Japan has fed herself for centuries." When the next pupil to speak proposed that "How Japan gained her colonies" should be considered, an interesting discussion by the

class arose as to how much of this subject would be understood by the fourth grade, and some suggested ideas were rejected as unsuitable. The next idea brought forward was that pictures of the country should be shown on the screen. Just as the lesson period was finished, "Exports and imports" was added to the list at the suggestion of a member.

Second lesson. Discussing methods of presentation.—The first point taken up was how the subject of imports could be presented so as to be most interesting. One boy said he thought there should be two blackboards on the platform—on one a map of Japan; on the other a boat. He said the pupil who was to speak to the assembly could draw a boat, load it, and send it off. This would be then erased, and a boat shown with things brought into Japan. One little girl objected, "I think there must be two boards for boats, because if you try to erase the first, then the board will get too messy." Another child said, "Take the picture of the boat; load it with exports for China and the United States." He got no farther, for this met vigorous objection on the score that it would "mix up" the fourth-grade children. "Dress and houses" was then taken up, and as the children were discussing the points to be presented, the teacher asked whether they were going to represent the Japanese as an especially strange people or as neighbors with different customs from ours. The children thought they should be conceived in the latter way. The teacher said this was right and reminded them that we seem just as peculiar to foreign people as they do to us. She gave a résumé of a letter written back to Japan by one of the first Japanese consuls to come to the United States, in which he described some of our customs and manners, showing that they were ridiculous to him. She added that it would be all right to present on their program enough differences to make the Japanese appear picturesque and interesting, but not in such a way as to make them seem peculiar. This was all said in such a pleasing way that, with other remarks of the teacher, it reminded the writer of a quotation: "The duty of the

teacher of geography is to instill into the heart of the child a love for his brother, regardless of nationality, color, or creed."

Conclusion of geographic devices. *Outcomes in sympathetic social insight.*—This concludes our series of examples to illustrate the devices used in giving pupils insight into contemporary civilization through the study of geography. The broad lines along which the pupils' development is to be guided in such teaching are effectively stated in the following quotation of certain of the aims laid down in the fifth-grade course of study in geography which we quoted above:

1. To give impressions of Eurasia and its people through the use of concrete material, reading, field trips, map study, etc.
2. To emphasize the fact of adjustment to environment by bringing out the relation of such factors as soil, climate, mineral resources, and location to the life of the people.
3. To show something of the interrelation and interdependence of nations through the study of the products, trade routes, industries, etc.
4. To engender a sympathetic understanding of the peoples differing from us in race, customs, ideals, and modes of living.

B. *Reading Fiction to develop Social Insight*

What books to use. *Rousseau's use of "Robinson Crusoe."*—One of the most influential modern suggestions for using a work of fiction to give social insight was made by Rousseau in 1762, when he advised using "Robinson Crusoe" as a textbook in which the pupil would find vivid pictures of a man meeting his needs through his own efforts. This suggestion was accepted by certain noted educators in Europe, and for over a century its influence can be traced in their schools. A very recent example of a similar practice in this country is found in a course of study in community life for the junior high school of The University of Chicago.[1] At the end of the first chapter, which is entitled "Myself and Others," we find these questions:

[1] Published in slightly modified form as H. C. Hill's "Community Life and Civic Problems." (Ginn and Company, 1922.)

After Robinson Crusoe had been wrecked on his lonely island, was he dependent in any way on others?

While on his island Robinson Crusoe became in turn a house-builder, farmer, stock-raiser, doctor, basket-maker, hatter, miller, cook, boat-builder, tailor, and teacher. Why did he not become a merchant, banker, policeman?

Systematic fiction readings for community life.—Since the time of Rousseau, fiction that is suitable for giving pupils correct ideas of social life has become so abundant that Mr. H. C. Hill, who organized the course of study in community life just referred to, was able to append to each chapter a long list of books of fiction that contain relevant stories or discussions. For example, on the topic "The family" we find about thirty titles, including such well-known stories as "Little Women," "Little Men," "The Cotter's Saturday Night," "The Mill on the Floss," "Mrs. Wiggs of the Cabbage Patch." On the topic "The church" we find about twenty titles, including "The Pilgrim's Progress," "The Sky Pilot," "The Vision of Sir Launfal," "The Cloister and the Hearth," and "Ben Hur." On the topic "The school" we find some thirty titles, including "Nicholas Nickleby," "The Hoosier Schoolmaster," "Tom Brown's School-Days," "Stover at Yale," "Emmy Lou." Mr. Hill's list of fiction titles gives the most impressive suggestions that I have seen for furnishing pupils with ideas of the various complex phases of social life through the use of fiction, and demonstrates clearly the great possibilities of systematically using such reading in school to increase the pupils' sympathetic insight into contemporary civilization.

Varied methods of teaching fiction for social insight. *Examples.*—The methods of teaching that should be used in order to interest the pupils in such reading, direct their choices, and organize, stimulate, and correct their thinking have not been clearly determined. One noted authority emphasizes the value of the mere enrichment of the pupil's experience that comes from abundant reading of this type, regardless of any

discussions or recitations or reports that may be required. In addition to such valuable enrichment through mere vivid experiencing, it is probably also desirable in some cases to use methods that will require the pupils to reflect upon the experiences presented. The two questions given above relative to Robinson Crusoe illustrate instruction of this type.

Lesson on "Marmion."—Another example of such teaching is found in the following brief excerpt from the stenographic report of a high-school literature lesson on Scott's "Marmion." During the lesson the discussion turned to the topic "Knighthood," and proceeded as follows:

(1) TEACHER. What were the ideals of the knights of that period?

PUPIL. They must be brave, fight well, ride well, and be faithful.

(2) T. Anything else?

P. They must always be loyal to their king and help anyone in trouble.

(3) T. These were the chief points. Have you read any stories of any other knight besides Marmion?

1ST P. Sir Launfal, Ivanhoe.

2D P. All the stories of the Round Table.

3D P. "Parsifal."

(4) T. Does that belong to this period?

P. A little earlier.

(5) T. Still, you have read about knights and their ideals. Any other stories?

P. "Sir Nigel."

(6) T. Who is the most interesting knight you have read about?

P. Ivanhoe.

(7) T. You liked that best? How many do? (*Hands*)

(8) T. A good story of a very interesting knight. Do you think Marmion was a true knight? (*Hands*)

P. I think he was, as far as fighting and braveness were concerned; but when he put Clare in prison I don't think that showed a good spirit.

(9) T. Why did he put Clare in prison?

P. I mean Constance—he wanted to marry Clare, and he put Constance in prison to get her out of the way.

(10) T. Did he put her in there expecting she would be killed?
P. No.
(11) T. Your opinion, Arthur?
ARTHUR. He was worse when he forged the letters. (**23**: 90)

Three contrasting purposes in reading fiction.—The problem of determining what methods to use in teaching fiction in order to develop social insight is complicated by the fact that works of fiction may be read for at least three different purposes:

1. For the *harmless enjoyment of leisure.* This is the chief purpose and will be discussed at length in Chapter XIV, on harmless enjoyment.

2. For *moral inspiration.* This is a perfectly worthy purpose and will be discussed in Chapter XV, on civic-moral training.

3. For *sympathetic understanding of human nature and insight into social life.* This is the purpose that concerns us in this chapter.

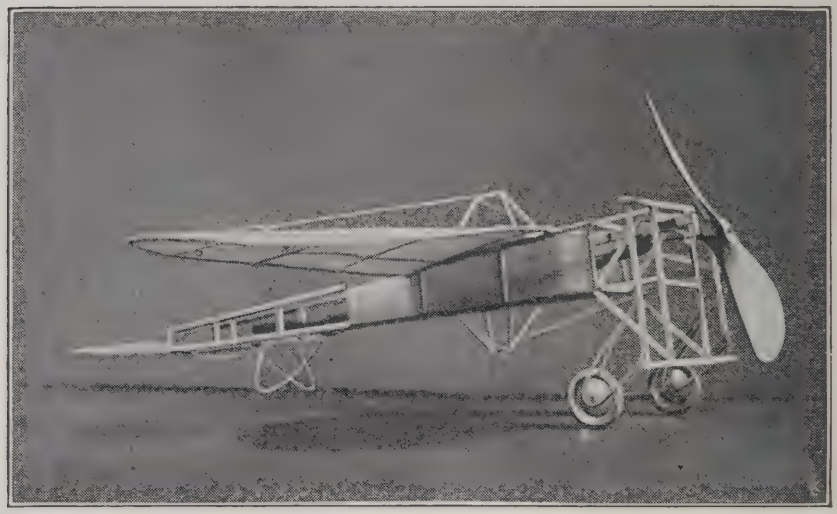
Purposes discussed by Rousseau and Herbart.—Many great authorities from Plato down to the present time have discussed the proper balancing of these three purposes. Thus Rousseau, the most inspiring influence in modern education, objected in 1762 to teaching children Æsop's fables because, he asserted, the child would miss the moral point intended and would sympathize with the villain instead of with the virtuous hero. Again, Herbart, one of the greatest German writers on education, stated, about 1809, that he thought Homer's Odyssey contained the finest revelation of human nature to be found anywhere, and accordingly he thought that children should read it; but he objected to "preachy," moralizing methods of teaching it.

For social insight provide interest, vivid experiences, and attentive reflection.—The selection of the appropriate method to be used with any particular piece of fiction that is being read will doubtless be correctly determined by the dominant purpose which we have in view. If merely the harmless enjoyment of leisure is our purpose, certain procedures may be appropriate; if giving the pupils moral inspiration is our purpose, other

Courtesy of The University of Chicago Elementary School

PUPILS IN THE SCHOOL'S PRINT SHOP

Regular instruction in printing introduces these children to an understanding of one of the most important civilized arts. Such instruction is one of the most educative forms of manual training



Courtesy of E. R. Downing

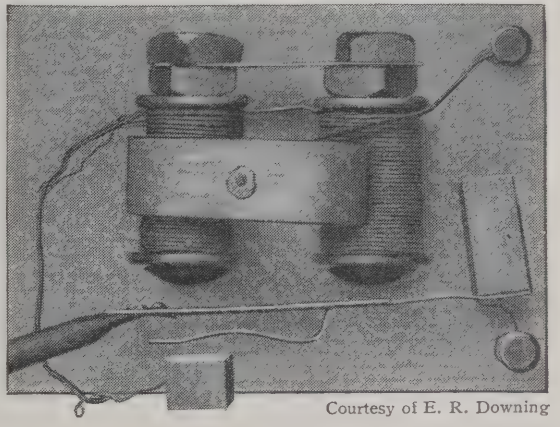
MINIATURE AIRPLANE MADE BY SEVENTH-GRADE PUPILS IN THE UNIVERSITY OF CHICAGO ELEMENTARY SCHOOL

Illustrates understanding one of the most important machines in contemporary civilization

procedures may be used; but if giving clear, vivid, usable ideas of social processes, problems, and relations is our purpose, we can probably safely use some of the various devices for arousing interest, giving vivid experiences, and stimulating attentive reflection which we summarized and interpreted in Section IV of this chapter.

C. *Devices for Social Insight through Arithmetic*

Illustrated by example in chapter on arithmetical computation.—In the social topics of arithmetic, such as buying and selling, interest, banking, insurance, and various forms of practical measurement, the school has an opportunity to introduce pupils to a study of many important quantitative aspects of contemporary life. In our chapter on arithmetical computation, we gave (p. 154) an example of a teacher's organizing a play store for the sale of school supplies in order to clarify the pupils' ideas of the arithmetical aspects of buying and selling. This example may typify the general procedure to be followed in appealing to pupils' instincts, giving them vivid personal experiences and requiring them to reflect upon these in order to secure an understanding of important social relations and processes.



Courtesy of E. R. Downing

ELECTRIC BELL MADE BY A SEVENTH-GRADE PUPIL IN THE UNIVERSITY OF CHICAGO ELEMENTARY SCHOOL

Understanding electrical appliances gives insight into one of the most important features of contemporary civilization

D. *Attaining Social Insight through Applied Science*

Illustrated by lessons on machines.—The possibilities of enriching the pupil's comprehension of social life through the study of applied science may be illustrated by an outline of some upper-grade lessons upon certain *machines* that have played an important part in industrial life and, consequently, in human progress. Such machines include the lever, the windlass and derrick, the pulley, and the steam engine. The examples given in the outline suggest the numerous uses of these in daily life. In some cases the devices used in The University of Chicago Elementary School for familiarizing pupils with each machine are also indicated in the outline.

Study of simple machines:

1. The teeter-totter, or seesaw [or lever]:
   - *a.* With sticks, fulcrums, and weights the pupils solve simple problems and learn the relations between the lengths of the parts of the seesaw on each side of the fulcrum, on the one hand, and the weights, on the other.

     By using the same stick as a crowbar the power necessary to pry up, or lift, a given weight is easily solved. Such topics as this are correlated with mathematics.
   - *b.* The following machines are studied and classified: scissors, balance scale, pincers, pump handle, wheelbarrow, nutcracker.
   - *c.* Pupils make balance scales of blocks, sticks, and cardboard, and weigh things and study [the] principle.
2. Other machines:
   - *a.* Another type of machine, represented by the windlass and water bucket, is demonstrated, and the relation between the weight of the bucket of water and the muscular power necessary to draw it up is studied.
   - *b.* The principle of the derrick is illustrated in the same way. Practical mathematical problems are solved.

     Applications of this type of machine: drawing well water; railroad hand cars; capstan or windlass on ships; moving buildings by horse power; etc.

3. The skid, or plank, used by teamsters in loading wagons:
   a. Groups of pupils demonstrate by using a board three or four feet long. If this is inclined and a toy cart is loaded and rolled up or pulled up by spring balance, the relation between the length and height of the skid, the weight of the load, and the power needed to push it up are learned.
   Applications: loading wagons and cars; coal and ore cars pulled out of mines; wagons drawn up hills; gang planks in loading steamers; etc.
4. The pulley—another type of machine:
   a. Pupils in groups experiment with pulleys and learn the advantages and disadvantages of each kind, or combination of kinds.
   Problems are given to solve with pulleys, involving the principles learned.
   Applications: hoisting heavy objects; raising sails on ships; moving buildings; clotheslines; derricks; dredges; wreckingtrains; etc.
5. Steam engines:
   a. Teacher demonstrates the power of a small amount of steam by boiling a little water in a corked test tube.
   b. Steam power applied to running an engine. A toy engine is run to demonstrate its working, and pupils draw it and learn its parts and principles.
6. Discussion of machines: advantages and disadvantages; types which sacrifice power in exchange for speed, or vice versa; etc. (**3c**: 581–582)

Conclusion of devices and methods in various school subjects.—This brings us to the end of the three long sections in which we centered our attention on the devices to be used in teaching community life, history, geography, fiction, arithmetic, and applied science so as to give pupils sympathetic insight into contemporary civilization. In evaluating these devices, we explained at length in Section IV how their success depends upon appealing to the pupil's instinctive interests, giving him vivid personal experiences and requiring him to reflect upon these experiences in order to arrive at ideas that are clear, vivid,

organized, usable, recallable, mobile, and modifiable. We have still before us in the chapter another important psychological problem; namely, to determine the nature of sympathetic insight into social life, in order that we may know when we have succeeded in cultivating it in pupils.

Section VI. What is Sympathetic Insight into Contemporary Civilization

Four factors. (1) *Type examples*, (2) *systematized knowledge*, (3) *feelings of meaning*, (4) *attitudes*.—The foregoing concrete sections of the chapter have given us background for the consideration of the question propounded in this section; namely, What is sympathetic insight into contemporary civilization? Thus Section I gave us a cross-section view of contemporary life as exemplified in the contents of a weekly review of the world; Section II showed us how the topics of this review are found in certain common subjects in elementary schools, such as community life, history, geography, fiction, arithmetic, and applied science; while the remaining sections gave us a notion of the devices used in teaching these subjects and a partial psychological justification for the activities required of the pupils in progressive elementary schools. In securing further psychological reasons for these methods we shall consider the following problems relative to the nature of sympathetic insight:

1. How effective are *type examples* in developing social insight?

2. How much of this insight consists of *clear-cut systematized knowledge, information, or definitions*?

3. How much consists of mere "*feelings of meaning*"?

4. What part do *attitudes* play, particularly in view of our use of the word "sympathetic"?

1. **Value of type examples.**—Several illustrations of the use of type examples occurred in the foregoing pages. For instance (on pages 208–209), we described the value of the study of

Lincoln's life as typifying certain aspects of the war between the North and the South, and called attention to the tendency of even adult minds to use the lives of great leaders as a means of grasping, symbolizing, and remembering great social developments. Again (on page 190), we indicated that the types of primitive life chosen for the primary course of study should be

Courtesy of The University of Chicago Elementary School

CHILDREN RAISING PLANTS IN A HOTBED

Illustrates giving insight into an important modern method of providing flowers and food for city markets

such that the ideas derived from them might be widely used by the children in interpreting other social situations. We found shepherd life and Scandinavian sea life to be strategic types for this purpose. Finally, in my own writing I have frequently developed a topic around type examples, such as the type lessons on the British Isles described in the geographic section of this chapter.

Illustrated by Jesus' teaching through parables.—The justification for such teaching by types is found in the fact that most human beings do much of their interpretation and evaluation in terms of impressions which they have gathered from a few

impressive examples. Jesus, who is often described as a great teacher, took advantage of this mental tendency when he taught through parables. His simple type stories, such as his parable of the wheat and the tares, or the one concerning the house built on the sand versus the house on the rock, have been used by his followers for two thousand years to impress truths of human nature and social life upon young and old.

Strong contrast adds to effectiveness of types.—In many of these parables we find the use of contrasting types to bring out the essential lesson which is to be taught. The value of such use of contrast has long been emphasized by psychologists and rhetoricians. In our course of study on community life and history we found frequent examples of the contrasting of type examples to bring out the peculiar points of each. Thus we had the strong contrast between Arab civilization and Viking civilization; between Romans and Teutons; between the British sympathies and the colonial sympathies in the American Revolutionary War; between primitive Chicago and the metropolitan Chicago of today.

Choose clear, vivid types of significant aspects of civilization.—Thus from the foregoing paragraphs we derive an answer to our first question; namely, How effective are type examples in determining social insight and attitudes? We find that our judgments and interpretations of human life and civilization are very frequently formulated in terms of single examples. As teachers it behooves us to choose examples that clearly, vividly, and truly typify great human events or important characteristics of civilization. By presenting strongly contrasting types we shall add even greater effectiveness to the impressions we desire to convey to pupils.

2. **Systematized knowledge.** *Skeletonized outlines of the main facts and principles of civilized development.*—The second feature of sympathetic insight into contemporary civilization which we would emphasize is the need of giving the pupil systematized knowledge concerning the most important

problems and aspects of contemporary life. As yet we have not adequate data to prove just what these most important problems and aspects are, but scientific educators are at work determining them. As examples, however, we may feel safe in using the following: (1) Every American and Americanized foreigner should know the fundamental stages and characteristics in the development of Anglo-Saxon democratic government—the most valuable factor in the world's governments of today. This knowledge should include familiarity with the causes, developments, and consequences connected with such strategic events as the signing of Magna Charta; the Commonwealth of Cromwell's time; the English revolution of 1688 and the writings of John Locke concerning it; the development of the power of Parliament during the eighteenth century; the weakening of this power through the intrigues of George III; the inheritance of English democratizing traditions by the American colonists; the violations of these traditions by the government of George III; the natural revolt of the colonies; the existence of a strong English sentiment favorable to the colonists; the winning of American independence; the long period of American experimentation in developing a strong central government, culminating in the Civil War; the development of effective machinery for administering democratic government, as described in Viscount Bryce's recent and remarkable book entitled "Modern Democracies"; and the extension of the ideals of Anglo-Saxon democratic government to France, Italy, the present British colonies, China, etc. (2) Every citizen of the world today should understand the ownership of private property and the part it plays in human progress and civilization. The principal facts to be systematized and learned in this connection are more difficult to specify than in the case of Anglo-Saxon democratic government. They would include, perhaps, knowledge of the instinct of ownership as one of the strongest of human characteristics; the history of the private ownership of land in some countries

where this has had a notable influence, as in France; the history of the failures of communistic enterprises that have tended to abolish private ownership; the part played by government agencies in protecting the property rights of the weak against the aggressions of the strong; etc. It takes little knowledge of the troubles which afflicted the world following 1914 to make us realize that systematic knowledge and understanding of these two phases of contemporary life (namely, Anglo-Saxon democratic government and the institution of private property) are important factors in securing a sympathetic insight into contemporary civilization. Within a few years we may hope to have, from the scientific investigations of the contents of contemporary newspapers and magazines, a valid outline of the most essential facts that every intelligent pupil should systematically master in order to understand the principal aspects of contemporary civilization.

3. **Feelings of meaning.**—Our next problem in determining what constitutes sympathetic insight into contemporary civilization may be introduced by a quotation from William James, our greatest American psychologist. The quotation follows his report of some experiments upon memorizing which showed that although the learners had apparently forgotten a memorized poem after the lapse of some time, the fact that they relearned it more easily proved that some considerable effect of the first learning had persisted. Hence, says James:

> [These] experiments show that things which we are quite unable definitely to recall have nevertheless impressed themselves, in some way, upon the structure of the mind. We are different for having once learned them. The resistances in our systems of brain-paths are altered. Our apprehensions are quickened. Our conclusions from certain premises are probably not just what they would be if those modifications were not there. . . .
>
> The teacher should draw a lesson from these facts. We are all too apt to measure the gains of our pupils by their proficiency in directly reproducing in a recitation or an examination such matters as they may have learned; and inarticulate power in them is some-

thing of which we always underestimate the value. The boy who tells us "I know the answer, but I can't say what it is" we treat as practically identical with him who knows absolutely nothing [at all] about the answer. . . . But this is a great mistake. It is but a small part of our experience in life that we are ever able articulately to recall. And yet the whole of it has had its influence in shaping our character and defining our tendencies to judge and act. Although the ready memory is a great blessing to its possessor, the vaguer memory of a subject, of having once had to do with it, of its neighborhood and of where we may go to recover it again, constitutes in most men and women the chief fruit of their education.

Be patient, then, and sympathetic with the type of mind that cuts a poor figure in examinations. It may, in the long examination which life sets us, come out in the end in better shape than the glib and ready reproducer, its passions being deeper, its purposes more worthy, its combining power less commonplace, and its total mental output consequently more important. (**21** : 141–143)

This quotation brings out clearly for us the distinction between two styles of mental products—the one consisting of clear-cut, well-remembered information and definitions; the other consisting of much vaguer, intangible outcomes, which James has called, in another place, feelings of meaning. Our problem is to determine the place of each of these sorts of mental products in giving a pupil sympathetic insight into contemporary civilization.

Precise information needed for technical decisions; feelings of meaning frequently adequate for appreciations.—The value of precise information can readily be demonstrated in many phases of social life. For example, in matters of health it is absolutely important to know that typhoid fever is usually contracted from drinking polluted water and that boiling the drinking-water or keeping the original supply free from polluted drainage is an effective preventive. On the other hand, in the same field of bacteriology and health it is easy to demonstrate the importance of the more intangible mental products, such as one's general impression that some bacteria are harmful and some are help-

ful, or one's general attitude toward cleanliness, which makes one like to have people wash their hands before coming to meals or makes one dislike eating in a dirty restaurant. In a thorough psychological discussion of our problem it would be necessary to determine rather precisely what part of our knowledge should consist of exact information and definitions and what part of general feelings of meaning. Obviously both play important rôles. For our present purposes we may lay down these principles: (1) In technical studies and in technical behavior, such as medical practice, legal practice, bridge-building, voting, legislating, investing, teaching, etc., we need many precise items of information, technical definitions, etc. (2) In the general appreciation of contemporary civilization the more intangible feelings of meaning, attitudes, etc. are frequently sufficient. (3) However, when called upon to decide or think clearly in a social crisis, such as that presented by an epidemic of disease or an economic catastrophe like that in Russia following the World War, we should refine our knowledge to the point of technical precision in order to reach a true and safe judgment.

4. **Value of attitudes, particularly "sympathetic insight."** —Our final question in determining the psychological nature of sympathetic insight into contemporary civilization concerns the part played by attitudes, particularly sympathetic attitudes. Professor Bobbitt has effectively illustrated this problem in connection with conflicts between one nation and another or conflicts between capital and labor. How can you get a sympathetic view of each side in such a controversy? Bobbitt says you can't do it by simply "sitting on the fence and disinterestedly observing both," but you must plunge in, imaginatively, "first on one side and then on the other, and learn each side by experiencing it. When one relives the fight, he has to be on one side or the other. If he is neutral, then he is not reliving the fight. He is an idle bystander." Bobbitt proceeds to illustrate his point by examples from our American wars and our national economic struggle for world markets, as brought out in the following quotations:

Let students relive the experiences of the Revolutionary War as accurately presented from the British point of view; imaginatively traveling and associating with the British armies and unconsciously taking on its valuations and aspirations and seeing everything from its side. This was just as much a part of the actual experience of the times. Let the student read the history of the Mexican War as a shadow-member of the army of Santa Ana, and thus see the war through Mexican eyes. This is just as true a view of it as the one from the American side.

Let the program of conflict, however, be no narrow one of military wars alone. Let there be far fuller experience on the part of youth in the nation's economic struggle for the world's markets. This is going on at the present time. It has been going on these hundred years or more. Let youth read a spirited history of our American merchant marine; of the contest we have made in the markets of South America, China, Russia, Australia, the Philippines, etc.; and of our struggles to keep our home markets for our home producers as against foreign competition. Let the present aspects of this economic struggle be made to stand out clearly, giving full space to the last decade or two. . . . [Again, in order] to prevent distorted social perspective, [let the pupil] read also vivid accounts of British commerce from [the British] point of view; of French commerce from [the French] angle of vision; of Japanese commerce; etc. (**20**: 137–138)

Imitative and imaginative behavior influence our attitudes.—These examples, in themselves, are sufficient to prove that attitudes are very central factors in determining a pupil's sympathetic insight into civilization. As Bobbitt points out, these attitudes are fundamentally influenced by our active experiences in participating, either actually or imaginatively, in the social situations to be studied. In this fact we find special justification for the varied forms of imitative behavior and expression which we found pupils experiencing (as described on pages 224–232) and which stimulate them to reproduce in miniature or in imagination the dramatic and problematic aspects of life among historic or remote peoples.

Conclusion of section on the psychology of social insight.—Thus we find (1) vivid, contrasting type examples; (2) sys-

tematized knowledge; (3) feelings of meaning; and (4) mental attitudes,—all playing important rôles in developing sympathetic insight into contemporary civilization.

Conclusion of the chapter.—The reader may now breathe a sigh of relief that he has reached the conclusion of this seemingly endless chapter. Your relief, however, is no greater than that of the author, who started to write it one winter; found himself so tangled up by the time it was half finished that he had to desist; pondered it for another year; and finally, the next winter, spent ten days in completing it. Now, with only the "main points" and the bibliographical notes to be written, I wonder what the effect upon the reader will be. Is there any chance that the subtitle "Acquiring sympathetic insight into contemporary civilization" may become one of your "favorite pedagogical possessions," as I suggested in the opening paragraph? Or shall you proceed to forget the whole matter, retaining only the vague feelings of ennui that the chapter may have fostered? Or, by chance, do you want an airplane view of the whole thing, to clear away the tangle of detail? If you do, read the "main points," which I shall now proceed to write and which you will find at the beginning of the chapter.

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2*a*. Horn, E. "The Application of Scientific Method to making a Course of Study in Civics." *Elementary School Journal,* June, 1919,

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4*a*. Horn, E. "Principles for making Curricula in History." *Teachers College Record,* September, 1915, Vol. XVI, pp. 339–345.

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8. Storm, Grace. "Roman History in the Fourth Grade." *Elementary School Journal*, November, 1915, Vol. XVI, pp. 132–146. Compositions and sand-pan devices fully described and pictured.

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CHAPTER X

PROBLEM-SOLVING, OR PRACTICE IN THINKING

Main points of the chapter.—1. A problem is a question involving doubt, as in Hamlet's "To be or not to be."

2. Both *large* and *small* problems abound in daily life and should be provided in school.

3. Both *practical* and *speculative* problem-solving are enjoyed and practiced by children and adults.

4. Illustrations of the great variety of problems in life are suggested by the following types: constructive, transportational, diplomatic, moral, expressional, artistic, mathematical.

5. Problems arise from something puzzling, perplexing, strange, unexpected, or disconcerting.

6. When a pupil's mind is challenged by such a situation he has a genuine problem.

7. Both *presented* problems and *discovered* problems abound in everyday life and are appropriate in training pupils.

8. Both *conclusive* and *inconclusive* solutions of problems occur in everyday life and should be provided for in school.

9. Sometimes everyday problems are solved by an individual working alone, but many are solved by problem-solving group discussions.

10. Pupils should be trained to solve problems reflectively instead of impulsively.

11. In school, examples of such reflective problem-solving occur in the following lessons:

a. Determining, in a seventh grade, whether the United States should produce enough sugar to meet its own needs.

b. Constructing, in the kindergarten, the front for a cardboard store.

c. Planning, in a second grade, the costumes for some Arab dolls.

d. Deciding, in a fifth grade, why London Bridge was so located, and where the docks, factories, and residences would tend to be developed.

12. In discovering the answers to problems even the greatest thinkers make many erroneous guesses, but are skilled in devising means of testing these. Such thinkers are quite willing to give up erroneous ideas and to suspend judgment until adequate evidence or proof is secured.

13. In conducting problem-solving lessons so as to train pupils to be skilled problem-solvers, the teacher should aid the pupils

a. Clearly to define the problem.

b. To keep it in mind at all times, thus avoiding being side-tracked.

c. To make many relevant suggestions.

d. To evaluate all suggestions critically.

e. To keep the thinking systematically organized.

The second "thoughtful process" of Part II.—This chapter, on problem-solving, is concerned with the second of the "four thoughtful processes" to be discussed in Part II of the book. The first of these processes—namely, "understanding social life"—was discussed at great length in the preceding chapter. In the account which we gave there of the rich intellectual life that a progressive elementary school affords, we had frequent occasion to indicate how problem-solving activities of the pupils are utilized as a means of clarifying and organizing their ideas of contemporary civilization. Such problem-solving activities furnish the special topic for discussion in the present chapter.

Definite technique established.—During the past twenty-five years a definite technique of giving to pupils practice in problem-solving, or thinking, has been developed in progressive American elementary schools. It is the chief purpose of this chapter to acquaint more teachers with this technique, so that any skilled teacher who is a good thinker may give pupils practice in problem-solving and make them aware of the elements of skill in effective thinking. In order to show the importance and validity of the practices to be described we shall discuss also the place of problem-solving in everyday life and the ways in which skilled problem-solvers think.

Sections of the discussion.—We shall divide our discussion into four main sections, with certain subdivisions, as follows:

I. Problems of everyday life (p. 265).
II. Actual lessons illustrating problem-solving in school (p. 279):
A. Seventh grade: Should the United States produce its own sugar? (P. 279.)
B. Kindergarten problem: How to make the front of a cardboard store (p. 286).
C. Second grade: How to dress an Arab doll (p. 293).
D. Fifth grade: Standardized short geography problems on the British Isles (p. 300).
III. How skillful problem-solvers think (p. 307).
IV. Rules for training pupils in reflective problem-solving (p. 314).

Section I. Problems of Everyday Life

Definition. A problem is a question involving doubt. "*To be or not to be.*"—For our purposes a problem may be defined as "a question involving doubt."[1] From this point of view the problem frame of mind is well depicted in Hamlet's famous lines beginning, "To be or not to be, that is the question." Whenever we thoughtfully search for means of dealing with any such doubt or perplexity or uncertainty or difficulty, we are engaged in reflective problem-solving. The problem may arise from some practical difficulty or from mere curious wondering about some unexplained or unusual fact. Such a practical problem as "Where shall I spend my vacation?" often causes the most profound thinking and inquiry. Similar investigation is often entailed in deciding whether to go to college or to enter business. After one has decided upon a certain resort for his vacation or a certain school for his education, the clothes problem or baggage problem may become crucial. One may say to oneself, "To take a suitcase or a trunk, that is now the question." If a suitcase is decided upon, the problems may become very minute, such as, "To take this sweater or not, that is the question."

[1] This definition is based on Webster's International Dictionary.

Large and small problems. *From large policies to minute issues.*—Thus we see that the practical problems of life may vary from momentous decisions, such as deciding upon a college education, down to such minute matters as pondering whether to take or leave a certain garment. In the larger responsible positions of life we find the same contrast between large and small problems. For example, a business executive has *large* matters of policy to determine, such as how to increase his business, or how to keep his salesmen full of "pep" and to make them skillful in selling, etc. On the other hand, in his correspondence he solves scores of *small* problems each day, many of which involve merely a moment's glance at a letter and a half-minute dictation of the answer. In the life of a school superintendent or principal or dean the same extremes occur. For example, at one time when I was "deaning" I had the following *large* problems: (1) "How to discover a talented young man to become my successor as dean." To solve this required three years of exploration. (2) "How to improve the annual catalogue so that it could be more easily read by entering students." This required occasional editorial pondering during four years. (3) "How to reconstruct certain rooms so as to provide more offices for an increasing faculty." Securing satisfactory plans for remodeling two particular rooms took several months of occasional planning. At the opposite extreme were the small, short problems of advising students who were registering. On registration days from twenty-five to forty students were advised. Each case usually took from one to ten minutes and was determined in the light of such questions as: (1) What is the student planning to do in life? (2) What are her special talents? (3) What has been her previous training? (4) What required courses does she have to take? (5) What courses are offered that will meet her needs? (6) How can conflicts of hours be avoided?

Need of training in both short problem-solving and prolonged, patient thinking.—The relative proportion of large and small problems in life will influence our plans for organizing opportu-

nities for problem-solving in school. It is my impression that the small, short problems play such a prominent part in the daily life of most persons that we are justified in organizing in school thousands of such problems, each of which may consume only from one to ten minutes in its solution. At the same time we should provide for solution large problems which may puzzle the student for one hour or many hours, and thus train them to do the prolonged, patient thinking that is required in the larger, longer problems of later life.

Practical versus speculative problems. "*The Lady or the Tiger.*"—Up to this point our examples of problems have all been of a *practical* nature in the sense that they have related to practical plans or actions, usually of the person who was solving them. It is important to realize, however, that much problem-solving thinking in daily life is concerned with purely theoretical, or speculative, questions, the answers to which are *not* needed by the thinker in order to determine some important line of practical activity. To take an extreme example, some years ago Frank Stockton, the well-known writer, published a puzzling story called "The Lady or the Tiger?" This story tells of a low-born hero who dares to woo a princess. The king opposes the match and casts the hero into the arena, where he must choose between two doors. If he opens one a tiger will come out and devour him ; if he chooses the other a woman will appear whom he must then marry. The princess, in the balcony, knows the secret of the doors. She gives her hero lover a sign, and he opens one of them. The story ends with the question Which comes out—the lady or the tiger ?

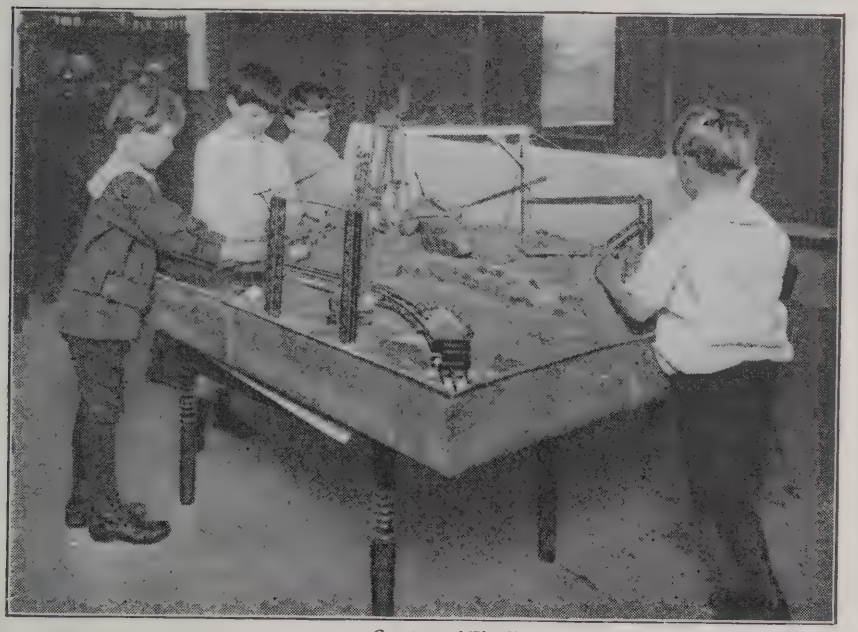
Girls puzzle over princess's choice.—When this unexpected puzzling ending to the story appeared, the country became involved in a turmoil of discussion in an effort to solve the problem. I watched a class of high-school freshmen recently discussing it. One girl said she had read every line about the princess eleven times in an effort to determine which door the princess's love and jealousy would lead her to indicate.

Playful speculation abounds in politics, religion, and science.—Other examples of such unresponsible problem-solving occur in politics, religion, and science. The chief mental recreation of many persons consists in puzzling over the political issues of the day—issues that are often so remote that the thinkers have absolutely no possibility of modifying matters in a practical way. Arguments about the Bible are often of a similar unpractical character. Finally, in the realm of science we find all types of inquiring persons, from the young boy who puzzles over polliwogs and electric bells and flying machines up to the advanced astronomer who tries to locate a new comet or planet—all concerned merely with "Why does it do that? or How does the thing work? or Where is the planet that explains these gaps in our calculations?"

Playful puzzling may train for practical problem-solving.—Often such playful puzzling proves of value to the problem-solver and to society. For example, the adolescent girls who puzzled about love and jealousy as exemplified in Stockton's princess were probably acquiring knowledge and skill in judging some of the most crucial issues of life—issues to which we find our greatest novelists and dramatists devoting their best talents. Similarly, the inquiring reader who ponders with interest political issues that do not concern him in a practical way is acquiring knowledge and skill which may help him in arriving at sound decisions upon political issues in which he does have a voice. The way in which playful, theoretical, or speculative problem-solving thus prepares for practical problem-solving is merely one example of the way in which play in general trains for serious activities. Dogs play at running, catching, biting, and fighting and are thus prepared for the real fighting and hunting of life. Men, women, and children play at puzzling out all kinds of interesting problems, and may thus be trained and kept in condition to cope with more serious problem-solving when this is required.

Project problems involve practical devising, contriving, scheming.—The term "project" is commonly used in every-

day life to designate practical problems which require much consideration, scheming, or planning to reach a solution; that is, to determine what to do and how to do it. Thus, at present writing, a commission from the United States and Canada is actively working upon the project of providing a means for large ocean vessels to reach the Great Lakes via the St. Lawrence



Courtesy of The University of Chicago Elementary School

PRIMARY CHILDREN SOLVING MECHANICAL CONSTRUCTION PROBLEMS

River. This example illustrates the dictionary statements that a project is "something of a practical nature thrown out for the consideration of its being done," and that *to project* means "to contrive, to devise, to scheme." In recent years special efforts have been made to parallel in school this kind of everyday practical problem-solving. Hence pupils are now given practice with construction projects, dramatic projects, assembly projects, editorial projects, and other projects similar to those of everyday life. In this book, whenever we refer to pupils' projects we have in mind some such practical pupil

activity which calls for practical contriving, devising, and scheming, as distinguished from the mere speculation which prevails in solving purely theoretical problems. Examples of such pupil projects are pictured in the frontispiece and on pages 186, 195, and 201, while detailed descriptions of pupils at work planning typical projects are given on pages 9, 288 ff.[1]

Great variety of problems in social life. *Mechanical, diplomatic, moral, expressional, æsthetic, scientific, and mathematical.*—The examples discussed above have given us some notion of the varieties of problems found in everyday life. In order to extend our impressions of the many types of problems that exist we may note the following partial classification of them:

1. *Mechanical-construction* problems; that is, problems of how to make something. These may vary from the small but very puzzling problem of how to "make over" an old garment up to such a complex scientific problem as how to make a flying machine—a problem that puzzled the world for centuries. Many construction problems are now provided in elementary schools.

[1] *Avoid confusing project teaching and motivation.*—The description which we have given of *project teaching* will help the reader to avoid confusing the term with the educational concept of *motivation*. The central idea in the recent discussions of *motivation* seems to be that a pupil secures valuable training through clearly conceiving some interesting end toward which he directs his present activity and from which the latter derives interest. The writers on motivation have emphasized the desirability of well-defined pupil purposes and whole-hearted interests as educative factors. Motivation thus becomes one phase of the *doctrine of interest*, and its adequate discussion would require a consideration of human instincts and motives, as found in such chapters as those by James and Thorndike on human instincts and in such books as McDougall's "Social Psychology." It is clear from these facts that motivation is quite a different concept from project teaching, in which the central element is the contriving, devising, and planning by the pupils of some practical activity,—something to be done. (For a full discussion of project teaching from this point of view, see the author's articles in the *Elementary School Journal* for January and February, 1922, Vol. XXII, reprinted and sold separately by the Department of Education of The University of Chicago for 25 cents.)

It is important to notice that in the present chapter we are interested in the thoughtful planning and designing that enter into the solution of such problems, rather than in the actual mechanical construction.

2. *Transportation* problems; that is, problems of how to take or send something to some place. These may vary from the simple personal problem of how to get a parcel to a friend around the corner up to the enormous transportation problems that confronted the Allies during the World War. Such problems occur in all kinds of situations. For example, in department stores there is the problem of transporting the money from the salesmen to the cashiers. In large libraries enormous problems of human energy and convenience are involved in the stacking and arranging of books so as to render their transportation to readers swift and economical. In the courses in history, civics, geography, and science, problems of transportation are being pondered more and more in progressive schools.

3. Problems of *personal relations, reactions, and influences*; for example, "Would Stockton's princess prefer to see her lover devoured by the tiger or to see him become the husband of another woman?" In daily life we are constantly pondering such human-nature problems. Often they are of a diplomatic character; for example, how to influence our relatives, friends, and associates. Recently I pondered for two days how to present a business proposition to a certain man. At first I decided to write an outline of it, lay it before him, and explain it. On my way to see him, however, I decided that he so disliked listening to others that the only thing to do was to let him talk and then gradually to insinuate my own proposals piecemeal, as occasion offered, during his conversation. This proved successful. In all the social studies—history, civics, biography, literature, etc.—personal relations, reactions, and influences appear which offer opportunities for problematic discussions that train pupils in solving such human-nature problems when they are encountered in daily life.

4. Problems of *social organization*, such as "How shall we organize our literary society?" or "Which is better, for the government to own and operate the railroads or merely to control and supervise their operation?" From the simple organization of domestic activities up to such international organizations as the League of Nations we find thousands of problems under this heading. In the social studies, when these are properly taught, pupils are given training in planning, suggesting, criticizing, and evaluating solutions of such problems.

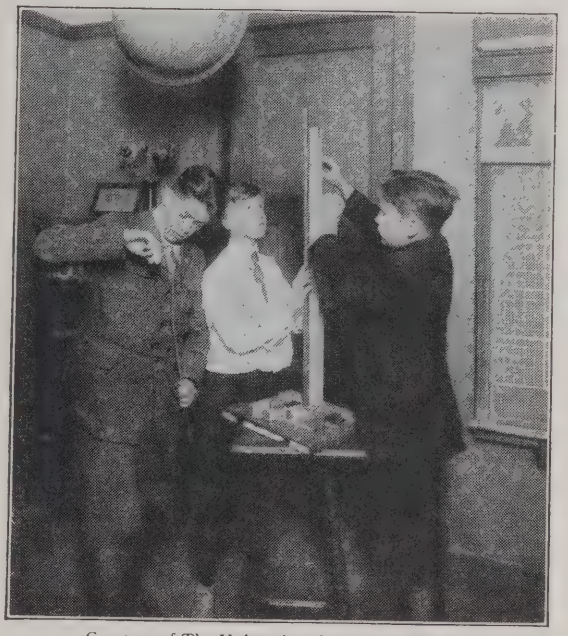
5. *Moral* problems, such as "Is it right for me to accept an education and services from my parents without making any immediate return in the form of home service?" Literature, biography, history, civics, and school activities are full of moral problems which especially competent teachers have pupils ponder and solve with benefit to their future powers of moral discrimination.

6. *Expressional* problems; for example, "What is the best way to word my refusal of this invitation?" or "How shall I write this chapter?" In planning to write the present chapter I pondered for weeks whether to open it with this section, on problems of daily life, or to open with actual lessons illustrating problem-solving in school. I finally decided to place the lessons as the second section, but I am not sure that this is the best order. Thus expressional problems vary from the simple choice of a word to the large outlining and planning of a book or to outlining a whole series of addresses. Training in expression in school thus offers one of the best opportunities for training in problem-solving.

7. *Artistic* problems; for example, "What is the most pleasing arrangement of the pictures in this room?" or "What is the most pleasing way of massing the shrubbery in this park?" or "What is the most pleasing color scheme for this window display?" In the art courses reflective thought about such problems is now encouraged in many schools.

8. *Pure-science* problems; for example, "Why does the mist hang in clouds a short distance up the mountain, but disappear

lower down?" or "Is the interior of the earth a molten mass or is it rigid and solid?" We are all familiar with such problems from our high-school science courses. In the grades, instruction in geography and science is being improved so as to offer increasing opportunities for pupils to puzzle out answers to scientific problems instead of merely learning scientific facts.



Courtesy of The University of Chicago Elementary School

UPPER-GRADE BOYS WORKING ON A SCIENCE PROBLEM

9. *Purely mathematical* problems; for example, "How do I calculate the amount of income tax that I have to pay?" or "What is the best way of auditing the report of the treasurer of our society in order to verify his accounts?" Not only in arithmetic but also in manual training, geography, science, and civics, pupils in progressive schools are being trained to puzzle out problems of arranging quantitative data and determining quantitative relations in order to prepare for the mathematically precise scientific method of problem-solving which is playing an ever-increasing part in solving modern civic, philanthropic, and business problems.

These examples suggest the large social value of training in problem-solving.—Several other types of problems could be described, but sufficient has probably been said to serve the purpose of this introductory section; namely, to give the reader a notion of the importance of the type of learning and training

which we have under discussion. In discussions of handwriting and spelling it is possible to present the results of precise investigations showing just what degrees of handwriting skill and what spelling words are important in everyday life. For problem-solving we do not possess similar precise information, but our examples probably serve to impress the reader with the frequency of problem-solving in daily life and with the consequent desirability of training pupils to be skillful problem-solvers.

Origin of problems. *In something puzzling, perplexing, confusing, disconcerting, unexpected, queer, strange, or odd.*— Before proceeding to the discussion of sample lessons which illustrate the organization of such training it is desirable to get in mind the idea with which this section opened; namely, that a problem involves both a certain intellectual and a certain emotional mental condition in the thinker—a problem is a question involving doubt. Consequently, for our purposes a problem is not merely a *topic*, as it often appears to be in some courses of study, nor is it merely a question. It is a type of mental condition in the pupil—a condition in which he is possessed of a question plus doubt. The more doubtful, uncertain, and perplexed he is, the more intense is his problematic frame of mind. Creating such a state of mind in the pupils, consequently, is the starting-point of problem-solving activity. Several words to describe this initial frame of mind have been brought together by Professor John Dewey, our leading authority on reflective thinking, in his excellent book entitled "How We Think." In one place (p. 12) he says, "The origin of thinking is in some perplexity, confusion, or doubt." Again (on page 74) he speaks of "something unexpected, queer, strange, funny [that is, odd], or disconcerting" as furnishing the starting-point for reflective inquiry. Finally (on page 9), under the heading "The Importance of Uncertainty," he speaks of a "genuine *problem*" as existing in "whatever—no matter how slight and commonplace in character—perplexes and challenges the mind so that it makes belief at all uncertain."

Genuine problem for pupil when mentally challenged by something strange, perplexing, unexpected, or disconcerting.—From these terms we may derive a meaning for the rather ambiguous statement that has been current; namely, that the problem must be a problem for the pupil, not merely for the teacher. In terms of our discussion this means that the starting-point for the pupil must be something—no matter how slight or commonplace in character—that puzzles or perplexes him; something that appears to him as unexpected, queer, strange, odd, or disconcerting. When his mind is challenged by such matters the pupil has a genuine problem. It may be practical or it may not. It may be merely something "funny" in the sense of being unexpected or strange; in fact, much of our most intense problem-solving thinking by adults and children occurs in response to just such "funny," unexplained phenomena.

"Presented" problems and "discovered" problems.—Sometimes problems are "presented" to a person in daily life, and at other times he seems to "discover" them. The common use of the expression "the problem then presented itself" suggests the frequency of the first type of appearance of a problem. Many mediocre thinkers never seem to feel a problem at all keenly unless it is vigorously "presented" to them by some obvious difficulty, such as missing a train or having no money to buy something to eat. They are perfectly complacent mentally except in the face of some such vital emergency. At the opposite extreme we find persons who are of such an inquiring frame of mind that they are continually poking around and turning up doubtful questions or problems in all kinds of unexpected places.

"Presented" problems abound in practical affairs.—In practical affairs we meet frequent occasions both for solving "presented" problems and for "discovering" problems. For example, a business executive or manager is "presented" with a batch of problems every time he reads his mail or listens to questions from his subordinates or customers. A busy executive solves scores of problems a day which are presented to him in this manner. One

of the greatest elements of skill in executive work is the ability to decide rapidly many such problems as they are presented. Consequently, when we present pupils in school with many problems which they did not originate but which they must solve rapidly, we are paralleling one of the most important types of problem-solving in practical life.

Discovering problems illustrated by inquiring experts.—On the other hand, the *discovering* of problems is constantly illustrated in practical affairs when an expert examines a situation with a view to improving it. For example, a friend of mine took over the management of a large business, and one of the first questions he asked was "When do you have your salesmen's meetings?" The old manager said they did not have any meetings and was surprised when my friend pointed out that this was a serious defect in the organization. It is becoming more and more common to employ *consulting experts* (for example, in making school surveys), who visit a situation and by prying here and there with their questions uncover many problems which the "home folks" never realized were there. The importance of organized training for this type of activity is stated by Judd when he says:

> Not merely the solution of problems suggested by one's own experiences, then, constitutes the end and aim of school training, but the discovery of new problems is an important part of education. Youth is a period of learning to see problems as well as learning to solve problems. (**12**: 153)

Modes of solving problems. *Conclusive versus inconclusive solutions.*—For some of the problems that are presented or discovered, perfectly conclusive solutions may be found, but for other problems the solutions that are finally accepted may still be very uncertain, doubtful, and inconclusive. An example of a problem with a rather conclusive solution is "How shall I calculate my income tax if I am a bachelor with no dependents and with only a salary of $1500 a year for income?" The direc-

tions given on the income-tax blank for solving this problem are so definite that practically all competent persons would reach the same conclusion, or answer. Similarly, in solving the problem "How shall I fix this screen door, which sticks at the top?" there would probably be a conclusive, satisfactory answer that competent carpenters would agree upon. On the other hand, when we confront such a problem as "Whom shall we nominate as candidate for president of the United States?" we sometimes find the greatest uncertainty prevailing, even after the nomination has been made. Citizens frequently feel that possibly a better choice could have been made, and sometimes months or years must elapse to prove whether the chosen candidate was a satisfactory one or not. Throughout our daily affairs we are confronted with problems calling for such uncertain and doubtful solutions; for example, "Shall I give money to this apparently helpless beggar or refer him to the office of the Associated Charities?" Such problems with uncertain solutions are so common in the field of personal relations, financial investment, artistic production, etc. that we need to give pupils frequent practice in school in dealing with them.

Group discussions and individual solution.—Sometimes the problems which are presented or discovered are solved by an individual working alone, but frequently group discussion plays a very large part in the solution. Even where one individual does most of the thinking which attains the solution, he is often greatly aided by a few moments of discussion with someone else. In organized business and social life many of the crucial decisions, such as occur in undertaking new business ventures or passing new laws or trying cases in court, are reached only after many hours of problem-solving discussions by groups of persons. Hence, while it is important to train pupils in school in the solving of problems individually, it is equally important that they be given practice in problem-solving discussions in social groups so as to acquire skill in this important social art.

Reflective problem-solvers to be trained, not impulsive ones. —Finally, before turning to the sample lessons which will best illustrate how pupils are actually given practice in the art of problem-solving, we may note that we desire to produce *reflective* problem-solvers, not impulsive ones. To reflect means to turn the matter over in the mind, to view it from various angles, to consider carefully the various possibilities of solution. To develop skill in securing the true solution of problems by such reflective study is the topic of this chapter.

Summary of Section I.—In this section of the chapter we have been concerned with the problems of everyday life as brought out in the following summary: (1) Such problems vary from very large questions of policy to minute issues requiring only a moment's thought for their solution. (2) Consequently in school we need many *small* problems as well as *larger* ones. (3) Both *practical* problem-solving and *speculative* problem-solving prevail in daily life. (4) Playful, speculative problem-solving, "just for fun," is a very characteristic human activity and has large social value. (5) The great *variety* of problems found in daily life appears when we try to classify them as mechanical, diplomatic, moral, expressional, æsthetic, scientific, mathematical, etc. (6) Consequently training in problem-solving may be provided in many subjects in the school. (7) In order to start problems for pupils we must know what a problem is psychologically and how it originates. (8) For our purposes a problem may be defined as a *question involving doubt.* (9) Problems originate in something puzzling, perplexing, confusing, disconcerting, unexpected, queer, strange, or "funny." (10) When a pupil's mind is challenged by something of this nature he has a genuine problem. (11) Both "presented" problems and "discovered" problems abound in our daily life. (12) Some problems have *conclusive* solutions, but many have *inconclusive* solutions. (13) Sometimes everyday problems are solved by an individual working alone, but many are solved by problem-solving group discussions. (14) Hence practice in the

solution of group problems through group discussion trains pupils in a very useful social art. With this social setting of problem-solving in mind we shall turn our attention to a number of actual lessons which will illustrate how training in problem-solving has been organized by progressive teachers.

Section II. Actual Lessons illustrating Problem-Solving in School

A. *Seventh Grade: Should the United States produce its Own Sugar?*

Illustrates results of preceding training in problem-solving. —The first lesson which we shall describe is taken from an upper-grade class in order to illustrate what large issues may be considered reflectively by pupils who are about to graduate from an elementary school in which training in problem-solving is provided from the kindergarten up. After presenting this upper-grade example we shall describe lessons from the kindergarten and the second and fifth grades, in order to illustrate the gradual progress in the pupils' reflective abilities as they advance through the grades. All the lessons were taught in the Elementary School of The University of Chicago, about 1919, but similar instruction may be found in hundreds of progressive schools throughout the country. The seventh-grade geography lesson which we shall present first was taught by Miss Edith Parker.[1]

Relation to preceding lessons. *Pupils reviewing various factors in America's progress.*—The class was reviewing the geography of the United States, following a previous study of it in the fourth grade some years before. As the University Elemen-

[1] To satisfy the curiosity of the reader I may say that Miss Parker and the author of this book are not related. Hence it is not inappropriate for me to remark that Miss Parker's technique in conducting problem-solving lessons is a model of artistic teaching of this type. We shall describe some of her fifth-grade geography lessons later in the chapter.

tary School at that time completed its work in seven years,[1] the culmination of the geography training was so organized at the end of the seventh grade that it gave the pupils an opportunity to use their knowledge in considering certain large geographic problems of their native country.[2] As this class was studying the country in 1919, shortly after the close of the World War, they had been especially impressed with the marvelous achievements of the United States and had become interested in the following large question as the basis of the review: "What are the factors that make the United States such a great nation?" In discussing the matter they had brought forward a number of geographic factors such as the location and size of the country, its varied topography and natural resources, the character and amount of immigration, etc. For a few days they had concerned themselves with ascertaining the relative achievements of the United States and other countries in crop production. They had studied the cotton and corn crops and had become enthusiastic over our production of these staples. They next turned their attention to sugar production, and it was at this stage that the lesson which I shall describe occurred.

Pupils disconcerted by small sugar production. *Problem keenly felt.*—After some preliminary discussion Miss Parker raised the chief problem for the day by pointing to a graph which she had drawn on the blackboard. The pupils examined it and found that the United States had *produced* in a given year only one fifteenth of the world's supply of sugar but had *consumed* one fifth. After their earlier findings of the enormous production of cotton and corn in America, and their general contention that a great

[1] The seventh grade has since been made a part of the University Junior High School.

[2] For a description of the course in geography in this grade, see the *Elementary School Journal*, December, 1917, Vol. XVIII, pp. 271–279. For an article illustrating Miss Edith Parker's general procedure in organizing a large problem in geography, see her paper entitled "The Partition of Africa—a Seventh-Grade Geography Unit," *Elementary School Journal*, November, 1919, Vol. XX, pp. 188–202.

nation should try to be self-sufficient in its production of the necessities of life, many of the pupils were nonplused at this revelation of the sugar situation. Many of them were greatly disconcerted, perplexed, and puzzled by this unexpected shock to their strong national complacency. A psychological problem situation had been skillfully and easily created by the teacher. The current shortage of sugar served to make the problem felt even more intensely.

Problem clearly defined. *Proposition to increase production written on the board.*—The problem was then clearly presented for solution. "If we produce only one fifteenth and use one fifth of the world's supply of sugar, what should we do about it?" Some pupils suggested that we use less; others, that we produce more. One pupil finally presented a clear proposition that we produce as much more sugar as possible in order to try to meet our domestic needs. Miss Parker deliberately wrote this on the board and then asked all the pupils to decide whether they agreed with it. They all gave their assent.

Search for solution. *Geographies consulted to determine the possibility of raising more.*—The question then arose, Why, if this was advisable, had not the country done it before? In answering this question, attention became centered on the word "possible" in the proposition to produce more, and the teacher asked the pupils how they could find out whether it would be *possible* for us to produce more sugar. The pupils suggested looking up in their geographies the maps and other data showing the areas of possible sugar production and the conditions governing it. They decided to deal with *cane* sugar first.

Pupils suggest conditions; get data from maps; decide greater production is possible.—In reply to Miss Parker's question concerning the conditions which they would have to ascertain, the pupils replied "number of growing-days," "suitable soil," and "amount of rainfall." She wrote these items on the board, as she had done with a number of other crucial points in the discussion. Following their suggestion to ascertain the number of

growing-days needed, she directed the pupils to turn to their geographies and refer to a map of the United States with a line showing how far north sugar cane could be grown. They then compared this map with one showing actual cane production, and decided that as far as the number of growing-days was concerned much more cane could be raised. In like manner, they took up suitable soil conditions and rainfall and arrived at similar conclusions.

Teacher verifies pupils' conclusions by reference to a special treatise.—In order to verify their conclusions Miss Parker read from a special book on sugar a statement to the effect that thousands of acres in the country in which conditions were favorable for raising sugar cane were not being used for this purpose.

Teacher holds the discussion to possibility before considering profit.—As all these data were being produced and were gradually bringing out the *possibility* of easily producing more sugar in the United States, one boy kept suggesting that it might not be *profitable* to do so. Miss Parker made a memorandum of his suggestion on the board for later discussion, but suggested that they finish the investigations of the crop possibilities before they took up questions of profit, since the fundamental proposition to which they had all agreed and which was written on the board stated that more should be grown if *possible*. Some difficulty was experienced in getting the boy to give up his idea of considering *profitableness* before determining *possibility*.

Pupil's suggestion of lack of profit examined. Uncertainty about original proposition.—However, after the *possibility* had been definitely proved Miss Parker turned to the issue of profit. The pupils readily saw that what is possible is not necessarily profitable, and began to think that perhaps the proposition to which they had all assented at the beginning—namely, to produce enough sugar to meet our needs—might not be sound. In considering why the South had not raised more sugar cane, since it was quite possible, they suggested two important factors; namely (to use their own language), "competing crops" and

"cost of labor." They stated that probably portions of the South found cotton and other crops more satisfactory than cane, and that labor in Cuba was probably cheaper than in the Southern states.

Pupil suggests the tariff. Teacher leaves it an open question. —Thus they concluded that the United States did not produce enough sugar to meet its own needs because it could be imported so cheaply that the farmers found it more profitable to raise other crops. The period was almost ended. Hence, in order to relate the day's problem concerning sugar to the larger issue concerning the greatness of the United States and its self-sufficiency in producing the necessities of life, Miss Parker again raised the question of what we should do about the sugar problem. One boy suggested that we place a tariff on sugar. Miss Parker asked, "Who would pay the tariff?" The pupils said, "The people of the United States." "Who are the people of the United States?" she then asked. "We are," they said. She then asked whether it seemed wise to make every family in the United States pay more for its sugar by means of a tariff in order that the country might produce enough sugar to meet its own needs. Without waiting for an answer she concluded the hour by saying, "This is a problem upon which the greatest American statesmen disagree and to which Congress devotes long discussions."

Principles Illustrated

Broad, flexible grasp of subject matter needed by teacher in such lesson.—This type of geography-teaching is becoming common in schools where a special departmental teacher is employed to teach the subject in the middle and upper grades. It is obvious that the teacher needs a thorough mastery of the subject matter of geography if the discussions of the pupils are to be as flexible and broad as in the foregoing lesson. The teacher in such a case has to be familiar not only with such large issues as the question of protecting native sugar production by means

of a tariff, but also with such details as the number of growing-days required to mature sugar cane.

Broad knowledge anticipates issues and prepares scientific data.—It is important to note, however, that when a teacher is thoroughly informed concerning the problem under discussion, as Miss Parker was in this case, she can anticipate the various issues that will arise, have ready the necessary scientific treatises and references, and guide the discussion so that it follows important scientific lines instead of being sidetracked on minor or irrelevant issues. Thus Miss Parker realized in advance that the pupils would need to use the map showing sugar-cane production, and to save time had a memorandum prepared of the page on which it was to be found. She knew that the pupils would reach certain conclusions that needed verification, and she had on hand a special treatise on sugar and a certain report of the Department of Agriculture, with memoranda of the pages upon which the verifications could be based.

Pupils suggest and evaluate data and procedures.—Yet with all this definite anticipation, planning, and direction by the teacher, the pupils carried the main burden of solving the problem—they made all the important suggestions and evaluated most of them. Their suggestions included not only matters of fact, such as the necessity of enough growing-days and of suitable soil, but also methods of procedure; for example, suggestions that they examine certain maps in their geographies to find certain data. These suggestions of procedure went even farther and included decisions concerning how the question should be subdivided and which phase should be taken up first, etc. For example, early in the hour the question arose whether to consider the possibilities of increased production of *cane* sugar or of *beet sugar*. Miss Parker had the pupils decide which of these should be investigated first. They chose cane sugar and held to it.

Points of technique in seventh-grade lesson. *Rapid view.*—Before turning to other lessons which will further illustrate the

special technique to be used by a teacher in guiding problem-solving by pupils, we may note briefly some points of such technique as is illustrated in this lesson. It is not necessary to study these carefully at this point, as most of them will be illustrated repeatedly in the later lessons and will be summarized in Section IV of the discussion. However, the cumulative effect of frequent reference to them will be helpful. Miss Parker's lesson, then, had the following general characteristics found in the artistic direction of problem-solving discussions:

1. She created an intense problem frame of mind by disconcerting the pupils with a graphic representation of the contrast between our large consumption and relatively small production of sugar.

2. She had the problem for discussion clearly formulated and wrote it on the board.

3. She kept the problem clearly before the pupils by frequent reference to it as written.

4. She encouraged suggestions from the pupils not only in matters of fact or data but also in the matters of procedure; that is, in regard to such questions as "What shall we do next?" or "How can we find out about that?"

5. She encouraged the pupils in careful evaluation and criticism of the various suggestions.

6. She gave practice in the use of scientific treatises as the source of data and as a means of verification.

7. She encouraged the attitude of desiring verification of suggestions by reference to standard authorities.

8. She conducted the lesson at a deliberate pace, so that pupils were required to think before answering. As a special device in this connection she occasionally said, "When you have your mind made up, you may rise," and then waited until most of the pupils had risen.

9. She kept the discussion organized along definite lines by outlining on the blackboard the various important suggestions that were made and then holding to the order in which they had

decided to pursue the discussion. In this way the main problem became analyzed into a number of subordinate problems which were disposed of in an orderly manner.

Small subordinate problems that arise give even dull pupils a chance.—These subordinate problems included some very large ones and some small ones. Perhaps the largest that arose was the final one; namely, "Should a tariff be placed on sugar?" This seems almost as large as the original dilemma; namely, "Should the United States produce all the sugar it needs?" Somewhat smaller were these problems: "What factors make it unprofitable to grow more cane?" and "What conditions are necessary to produce sugar cane?" Still smaller were these problems: "How shall we find out how far north sugar cane can be matured?" and "How can we find out what states produce sugar cane?" The breaking up of the large issue into these smaller ones results in the lesson's providing training in the solution of both large and small problems. Some of the duller pupils, who might not be able to wrestle with the larger issues involved, might readily suggest looking up a sugar-production map and be able to read from it the data needed.

In the next lesson to be presented—namely, one from the kindergarten—we shall find such small, simple problems presented that even five-year-old children can easily solve them. By reading through the other lessons which are to follow we can see how children are gradually trained to the point where they carry on the high-grade type of reflective problem-solving illustrated in Miss Parker's seventh-grade lesson on sugar.

B. *Kindergarten Problem: How to make the Front of a Cardboard Store*

Contrast old-fashioned dictated constructions with new problem type.—In the kindergarten and primary grades many of the problems which pupils solve are concerned with the question how to make something. In the old-fashioned kinder-

gartens it was customary to dictate to pupils just what steps to take in constructing each object. There was little room for reflective thinking by the pupils. In a modern, progressive kindergarten, on the other hand, large opportunities are given to pupils to experiment in their construction, and the experimentation is made of a reflective, thoughtful type through class discussions which the teacher organizes. In order to bring out the contrast between the old, dictated type of constructive activity and the newer, experimental type, we shall present first a lesson from an old kindergarten manual published in London in 1874, and then follow with a modern problem-solving lesson in making the front of a cardboard store. In the old manual the "fifth gift" is described as consisting of twenty-seven small cubes piled together to make one large cube. Some of the small cubes were further subdivided into triangular prisms. Each child had this material before him; and in the dictated exercises all performed the same operations, as illustrated in the following quotation, in which the teacher addresses the children thus:

"Show me the three top cubes in front. Place them on the three back cubes. What has our large cube become? A flight of steps or a flower stand? [The teacher then talks with the child about these objects.] Divide the flower stand the long way into three parts—what does it become?" "Three narrow flights of steps." "Place the three together again. I take the middle step away and place the three cubes upon the top step. What have we now?" etc.

While the pupils may be gaining in motor control and in ability to follow directions in such a lesson as that quoted above, and may even be quite happy in the process, it is obvious that they are not being trained in thinking and are not acquiring much skill in solving construction problems.

Problem lesson. *How to make a suitable front for a cardboard store.*—In striking contrast with such mechanical, dictated activity, we present the following description of a lesson in the kindergarten of The University of Chicago Elementary School

in 1918. The problem which engaged the attention of each pupil was the making of a suitable front for a small cardboard grocery store. The teacher was Miss Olive Paine.

Relation to course of study in community life.—According to the course in community life, history, and civics in this elementary school, the children in the kindergarten study the family in its relation to the community. Needs of the family and the community as supplied by grocery stores furnish many problems. The pupils engaged in the lesson to be described were almost ready for the first grade.

Previous work. *Trip to a grocery store.*—The children had been taken to a grocery store some days before, where they observed the arrangement of the windows, doors, front of the store, shelves inside of the store, articles on the shelves and in the windows, etc.

A store of large blocks previously constructed.—A store of some considerable size had been constructed of large blocks and was still standing in the recitation room.

Individual stores started.—The day before the lesson each child had almost completed a small store made from heavy construction paper or from a cardboard box. The new lesson centered in the completion of a suitable front for each store. For this purpose each child had been given a piece of construction paper somewhat larger than the front of his store. Some children had already cut out windows and doors in these sheets.

Problem for the day. *Making suitable fronts.*—The stores and fronts were brought out. The fronts were to be criticized, and to be remade if necessary. In short, the problem was the making of *suitable* fronts for the stores.

Working-out of the problem. 1. *Criticism of previous work.*—As the teacher handed a child his store and his front, she asked him to place the front in position and see whether he thought it was just as he wanted it to be. Sometimes the windows extended beyond the outside walls of the store. Sometimes the doors and windows were higher than the store.

2. *Children suggest modifications; discovering how to fit the fronts.*—One child was asked how his front could have been made to fit the store. He held the sheet of pasteboard in front of the store and folded it around the side. Miss Paine asked what that was for. The child replied, "You could paste it tight to the store to hold the front on." One child suggested folding the sheet over. The teacher asked how. Various children made suggestions, and they finally concluded that the sheet might have been held up in front of the store *before* the windows and door had been cut out. The place at which to fold it might have been marked with lines drawn with a pencil. Miss Paine asked how they would have marked *straight* lines. Finally, it was brought out that the sheet might be laid on the floor and folded over in a straight line by placing the edges of the top exactly together. Some of the children needed new sheets of paper and were hence provided with fresh material.[1] Each child was led to hold the sheet up in front and mark a place with the pencil; then to lay the sheet on the floor and fold it over at one side; then to hold the sheet up again and find the other side.

3. *Deciding how to make doors and windows; crude idea of one child.*—Then the children were led to see that the doors and windows must come in between the two folds thus made at the side. Some wanted two windows and one door. One little girl (the least able of the class, it seemed) cut a very narrow door

[1] An interesting dilemma arises in deciding *how much* to let children *experiment* in such construction work. On the one hand, it might be said that such experimentation, with its frequently erroneous results, is necessary for children of kindergarten age in order to get them to feel the need for such thoughtful planning as prevailed in the lesson which we are describing. On the other hand, some educators would favor more direction by the teacher in order to avoid the waste of material incurred in this lesson. In the steel industry Carnegie would tear down and throw on the scrap heap an expensive plant which had been in use only a short time in order to make way for another which afterthought had shown to be better. How much should kindergarten children be permitted similar waste in solving construction problems? A later section on the nature of problem-solving will throw some light on the dilemma.

about twice as high as her store. She was asked why she had cut so high a door. She said she wanted it that way. The other children said it was too high. The girl then said it was for an upstairs. The teacher asked whether stores and houses had a high door that was for both the lower floor and the upstairs. The child insisted that *hers* was all right. Finally, the teacher gave her a new sheet, pretty closely directed her work, and tried to get her to see the proper proportions for windows, door, etc.[1]

4. *Informal but directed designing and making; what next, and how.*—The children worked on the floor in a perfectly informal way. They were led to *see* what the *next* thing was and to *want* to do *that* thing. *How* it could be done was discussed and worked out very skillfully. Some of the children left the part designed for a window uncut at one end. Some wanted to use this to raise for an awning, and some wanted it for a shelf under the window. Apparently something of this kind had been done at some other time. The observer doubted whether this tendency came out accidentally on the part of so many without having been brought out in a previous lesson. However, it was quite skillfully used by many of the children.

5. *Teacher suggests standards for comparison.*—Miss Paine kept bringing out the idea of size by comparison of the relative heights of doors, windows, shelves, men, women, etc. in the store they had seen and also in the store made of blocks.

6. *Children vary ideas of hinges.*—The number of hinges needed for the door was discussed. One child had just one hinge and seemed happy. She was sent to examine a door to find out

[1] Children with low-grade intellects are often unable to *plan* intelligently, but can acquire skill in motor arts; for example, Goddard indicates that a certain type of moron can learn to use machinery and care for animals and needs no supervision for routine work, but cannot plan. It is a waste of time to try to train such pupils to be skilled thinkers, but it is profitable to teach them practical motor arts by careful supervision. For Goddard's convenient table showing some of the possibilities of the feeble-minded, see pages 554–555.

how many hinges other doors had. Different children decided that two or three hinges would be best. One boy said four would be best. He wanted that number.

7. *Intercomparison and exchange of judgments by children.*—The children were led to judge of the quality of their own work, and to supplement the judgment of others concerning their work and to supplement the judgment of the teacher.

8. *Fast children plan further work.*—Two children proved much quicker and showed more ability in motor coördination than did the rest. They completed their windows and doors and were ready to go on. They were asked what they wanted to do next. They said, "Make a shelf." They were asked what they wanted to make it out of. "Pieces of cardboard." The teacher handed one a piece and asked if that would do. "It is too little," he said. The teacher said they should make the shelves the next day, as the end of the period had arrived.

9. *Articles put away until the next day.*—The children were asked to get their stores and fronts ready to put up. "How will you know them?" asked Miss Paine. "Mark letters on them," they said. Then they made their initials on the inside of the stores and the fronts. Quite naturally they gathered up their scraps and put them into the wastebasket.

Evaluation of a kindergarten problem-solving lesson. *Remarks by trained observer.*—The foregoing account of the observed lesson, except the paragraph headlines, was written by an experienced teacher of high-school mathematics, Miss Eleanora Harris, who had become interested in problem-solving in general. She was in the process of organizing her ideas of the technique of such teaching while attending a class for supervisors of teaching. Consequently the following comments, which she made as a high-school mathematics teacher observing a kindergarten construction lesson, are suggestive concerning the general matter of problem-solving:

1. *Definite aims.*—The object of the lesson was clear to both teacher and children and was kept before the minds of the chil-

dren all the time. Suitable fronts for the stores were to be made. This was the *object* in the *minds of the children.* In the *mind of the teacher* many purposes were in view. Each thing done was a preparation for that next higher. Progressive development was aimed at. This was evident in her questions, suggestions, etc.

2. *Self-criticism by pupils.*—Progress was made in the children's criticism of their own work. Each child, as he worked on his own front, was led to judge his own work from time to time as it was completed at that stage. He was led to find out how he could determine whether it was just what he wanted it to be. This was one of the parts of the recitation in which the teacher showed skill above the ordinary.

3. *Coöperative suggestion and evaluation.*—The matter of cooperative work, suggestions, etc. was brought out by the pupils in supplementing criticisms of each other and of the teacher. The teacher worked with the pupils, and they worked together, and yet each child was busy with his own store front.

4. *Encouraging pupils to make suggestions.*—Independence on the part of pupils was encouraged by such questions as "What would *you* do?" "How might you do *this* time?" "Could you do it this way?" "If that is not just as you want it, *how can you make it* as you *want it to be*?"

5. *Responsibility for planning.*—Each child was led to feel his own responsibility for the making of his front, planning, etc. He was first led to see what he wanted, and then he tried to find out how he could make what he wanted.

6. *Pupils interested.*—The children were interested in their own work. This was shown by the fact that they wanted to go on even after the end of the period.

7. *Teacher anticipates pupils' difficulties.*—A child's probable difficulty was anticipated. The teacher really kept a sharp lookout on each pupil's work, although she seemed to be leaving him to do as he pleased. If she saw a child marking a place that would result in the same error he was trying to avoid, she would ask him questions and get him to try to find out whether

that mark was just right. Sometimes she would ask a child who was about to get into trouble to look at the work of another who was succeeding and see what he thought of that. The child, without any suggestion, often got a clue for his own work and proceeded. If not, the teacher suggested something.

8. *Leaves a problem for the next day.*—The teacher left a problem in the minds of the children to be worked out for the next day—how to make the shelves on which to put the things they wanted in their stores.

Transition to higher lessons.—Having gained these impressions of the technique of conducting problem-solving lessons in the kindergarten, let us now turn our attention to sample lessons from the second and fifth grades which will illustrate the practice in thinking that the pupils are given as they progress from the simple construction problems of the primary grades to the ability demonstrated in the seventh-grade sugar-production lesson with which the present section began.

C. *Second Grade: How to dress an Arab Doll*

Relation to course in community life.—The study of the pupils' immediate environment which we found illustrated in the kindergarten lesson on grocery stores was followed in the first grade by a study of *farm* life and *Indian* life. As described in the preceding chapter, these social types enrich the pupils' ideas of human wants and needs and of means of meeting these. In the second grade another strategic type of civilization was encountered in the study of primitive *shepherd* life. Here the Arabs of the desert were being studied when the lesson which we shall describe was observed. The lesson occurred after the class had been studying the Arabs for some time. On the sand-table the children had made a desert, sand hills, and camel tracks and had planted some miniature palm trees. On the blackboard along one side of the room were pictures of deserts, sand hills, and several camels. The teacher was Miss Mary Cameron.

Conversation reported to illustrate details of technique.—In describing this lesson we shall report more of the language used by the teacher and pupils, in order to give a more detailed impression of the mental activities of the class and of certain

Courtesy of The University of Chicago Elementary School

CONSTRUCTION PROJECT INVOLVING THE TYPE OF PROBLEM-SOLVING DESCRIBED ON PAGE 295

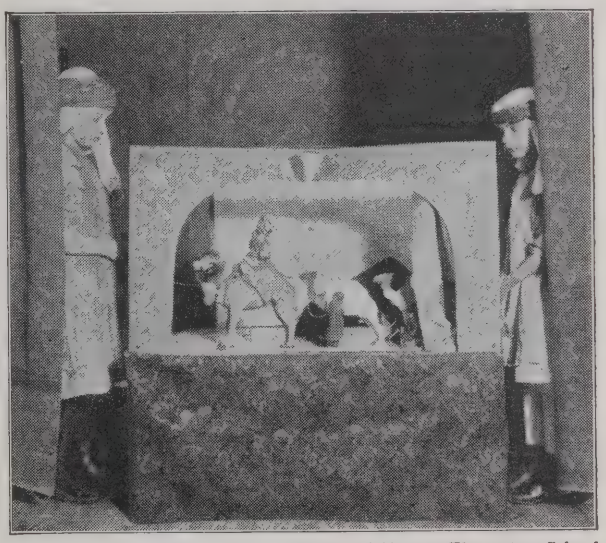
details of the teacher's technique. Only a part of the total conversation of the pupils and teacher is reproduced, but enough is given to illustrate the conversational method of teaching. To assist the reader in following the conversation the teacher's part is printed in italics.[1]

Problem for the day.—In the teacher's mind the problem for the day was a study of the dress of the Arabs. The funda-

[1] Again I am indebted to Miss Eleanora Harris, who took shorthand notes, for a description of this lesson. I have inserted the paragraph headlines.

mental aim was to clarify and enlarge the ideas of the children concerning costumes. In the minds of the children it was dressing dolls to people their desert.

Procedure: 1. *The children suggest several things that need to be done.*—"*We have finished our oasis and desert. What shall we do today?*" asked Miss Cameron. The children replied: "Make a camel." "Make some Arabs." "*What Arabs should you like to make?*" "Some traveling Arabs." "We can make some tents too," said the children. "*How many Arabs shall we plan for?*" "Twelve." "*But,*" said the teacher, "*our sand-table is not very large.*" "Let's make two tents and two families," came from a little girl. "*How many do you want in your family?*" "The father, the mother, and a little boy or a little girl." "*All right, or there might be both a little boy and a little girl. Now, here are the dolls you brought me. Which shall we choose for the father?*" One doll was chosen. "*What shall we do next?*" "Make his clothes?" "*Yes, but what must we do before we actually make the clothes? What does your mother do before she makes you a dress?*" "She cuts a pattern." "*Yes, and what else?*" "She measures me." "*Yes, and what else?*" It was then decided that the clothing must be planned first.



Courtesy of The University of Chicago Elementary School

PUPPET-PLAY OF ARAB LIFE INVOLVING MUCH PROBLEM-SOLVING BY THE PUPILS

See their account on the following page

OUR THEATER

We were studying about the Arabs and so we decided to make a puppet theater and show plays of Arabia to the other grades. We took an old kitchen table and nailed a wooden post in each corner. Then we took a piece of cardboard and cut an arch-way and nailed it to the front posts. We did this to cover the posts and make the stage look like a real theater. We stretched wire around all the posts. We stretched wire across the stage for scenes to move on. We had a wire between the two front posts to hang the curtain. We have a linen curtain with a border of tents and palm trees. We have strings fastened to it so that we can pull it back and forth.

We drew pictures of wide, hot plains for the backgrounds. Some show the sunrise and some show the sky at night. Then we dressed some dolls. We made an Arab chief and a woman and a boy and girl. We dressed camel drivers. We modeled camels out of clay for a caravan. We have palm trees and tents, too.

We have one play with it and we are practicing another. We put wires onto our dolls so that we can move them. The dolls can't talk so we get behind a curtain and talk for them and move them with the wires so that the people cannot see us.

We will write you the play we made and are practicing in our theater now. This is it :

BRAVE DEEDS OF TELLAH

A play for our theater

ACT I

Scene I

An open desert. Camels pass in line across the stage.

PUPILS' OWN ACCOUNT OF THEIR ACTIVITIES IN PREPARING ARAB PUPPET-PLAY PICTURED ON THE PRECEDING PAGE

From the school paper printed by the pupils of The University of Chicago Elementary School

2. *Teacher focuses attention on planning clothes for the father doll.*—"*What clothes shall we need to make for the father?*" asked Miss Cameron. "A turban." "A robe." "A sash." "Weapons." Then someone else suggested sandals. "How can we make sandals?" came from a little girl. "*We will leave that for another time,*" replied the teacher. "*What else shall we need for the father?*" "A shawl." "*Why does an Arab wear a shawl?*" "It is so cold at night."

3. *Summary of suggestions by children.*—"*Who can tell me everything that we shall need to make for the father?*" A child volunteered, "A sash, a robe, a turban, sandals, and a shawl." "*Let's look at some pictures,*" said the teacher. "*Notice carefully what these Arabs have on. Think about how we can make the clothes for the father.*" Then the children all looked at the pictures.

4. *Attack problem of making a robe.*—One little girl exclaimed, "We shall *have* to have a robe." "*What shall you need to make a robe?*" Then from various children came "Scissors." "Thread." "Red cloth." "A ruler." "Needles." "White cloth." "*All right,*" said Miss Cameron; "*here is some cloth. Who has a suggestion for making the robe?*"

5. *Boy experiments on robe.*—A boy went up to the table and, taking a small piece of white cloth, cut a hole in it and slipped it over the head of the doll. The teacher asked him to hold it up so that the others might see it.

6. *Criticisms and alternative suggestions by other children.*—Several of the children objected to the looks of the robe, saying, "It is too short." "*How long should it be?*" "It should come below the knees." "Oh, it should come clear to the heels," said another pupil. "*What else can you suggest about this robe?*" "Robes are loose over the shoulders." "*How could we make a robe that way?*" One boy said he would have a piece hang over each shoulder. Another wanted it to come to a point in the back. Another wanted it fastened in some way. One said the hole for the neck was too large. "*Why is it too large?*"

asked Miss Cameron. "It won't stay on the shoulder." "You could button it on," said one girl. "*Who thinks he can make a better robe?*" A girl tried. She held the doll up and said, "I would hold it together, this way, with a sash." "*Is it all right?*" asked the teacher. "No, it is not full enough."

7. *Subordinate problems arise: sleeves and sash.*—"Where are the sleeves?" asked a child. "*Will someone show us how the sleeves might be fixed so that they will be right?*" added the teacher. A girl pinned the sleeves. "*Do you think that is better?*" "No," came from several. Finally, the children got the sleeves pinned a little more to their taste. "*What could we use for a girdle?*" queried Miss Cameron. "A piece of cloth." "A piece of tape." "Paper." "*I am thinking of something that your mothers are using a great deal these days*," said she. "Yarn!" A piece of yarn was selected and wound around the doll. "*Do you like the side of this robe? Shall we make the side this way tomorrow?*" "No," said a child, "we must sew it." The teacher then had the children examine a seam of a little child's dress. They decided that the edge of the seam must be straight,—not left rough. "We can tuck it in," said a child, meaning that it should be French-seamed.

8. *Devising a turban.*—"*What else can we make for the father?*" "A turban." "*All right.*" A girl then took a piece of white cloth and tried to make a turban. She made it look about like a veil, hanging down the back. "*Do you think it looks like a turban?*" "No, it should not hang down," said a boy. "*You try it*," said the teacher. The boy got up and tore a very narrow strip off and wound it around the head of the doll. The result was a pretty good turban. "Looks like the father had a sore head," said one child.

9. *Standard for comparison presented by teacher.*—"*Compare it with a picture of a turban*," said the teacher, producing a picture of a man with a turban. "Pretty good," was the general verdict. But some were not satisfied with the sore-head appear-

ance. "*See if you can improve upon it,*" suggested the teacher to a little girl. The latter tried to make a turban by first winding it around her finger. She failed, and then wound the strip around the doll's head, as the boy had done. However, she took a broader strip. Some liked this better. "*Why do you think it is better?*" "It covers the head better." "It is more the shape." "*Is the turban finished?*" "No, a cord should be around it." "*You come and put a cord on.*" A boy put a bit of yarn around the turban for a cord. "It should be the same color as the sash," came from a girl. "*That might look better,*" said the teacher.

10. *Problem for next day.*—"*Tomorrow we shall make a shawl. If any of you have anything at home that you think you would like to use to make your shawl, it would be nice to bring it to school.*" Then different children told of what they could bring. "We must make a collar. Men wear collars," came from one child. "*Do Arabs wear collars?*" They decided not.

11. *Child off the track.*—One girl arose and very earnestly began telling how a doll she had was dressed. It was brought from abroad. It was a French doll. The teacher listened a moment and then asked, "*But what kind of people are we talking about?*" "Arabs," came in a chorus. "*Bring your things for a shawl tomorrow, and we shall finish dressing the Arab father.*" Thus ended the lesson.

Conversational method prevails in problem-solving discussions.—As indicated above, the conversational form in which this second-grade lesson is described helps us to get a clearer idea of the conversational spirit that prevails in a problem-solving discussion lesson than we derived from the seventh-grade lesson on sugar production or from the kindergarten construction lesson. It is important to realize, however, that in both these lessons the same informal, conversational give-and-take between teacher and pupils prevailed. At the same time, in all the lessons, we feel that the teacher is a very definite, stimulating, and guid-

ing force. She keeps the pupils' minds actively directed along educative lines so that they are acquiring important ideas at the same time that they are securing training in the reflective solution of problems.

D. *Fifth Grade: Standardized Short Geography Problems on the British Isles*

Transition from simple, primary construction problems to technical scientific problems of higher grades.—As a final example of problem-solving lessons in the elementary school we shall present one from a fifth-grade class in geography. This lesson will show the transition from (1) the simple construction problems arising out of social needs which we have illustrated from the kindergarten and second grade to (2) the more complicated, technical problems of the upper grades which we illustrated by the problem of the United States' increasing its sugar production, and which brought in such technical issues as the number of growing-days required by sugar cane, the cost of labor, competing crops, and the question of a tariff on sugar. In this fifth-grade lesson we shall find the children dealing with certain simple technical matters such as the tides in navigable rivers and the use of a scale of miles and of the directions east, west, north, and south in reading a map.

London problems. *How is London influenced by the Thames? Dialogue.*—Under the direction of Miss Edith Parker the children in the fifth grade of The University of Chicago Elementary School had taken up the study of the British Isles. They had begun the study of London shortly before the lesson which we shall describe. In order to give the reader further notions of the conversational technique of problem-solving discussion lessons, we shall present most of this lesson in dialogue form as reconstructed from rapid memoranda which I made during my observation. We shall use capital "T" to designate the teacher's remarks (which are printed in italics) and capital

"P" to designate the pupils' remarks. Occasionally, where I caught the name of the pupil, I have used it. Much of the dialogue is omitted, but enough is given to illustrate the procedure and to give the reader an impression of some of the fine points of the technique. The teacher's remarks are numbered, in order to facilitate discussions of the lesson.

The lesson.— When the children were seated and quiet, the lesson proceeded as follows:

Introductory.—(1) T. *How many can now see London on the map without looking at the latter?* (Several of the pupils held up their hands as Miss Parker waited a moment.) *About how far from the mouth of the river is it? Look at your maps and, using your scale of miles, work it out.*

P. I say it is exactly forty miles, because it is double the distance across the Strait.

Another P. I say it is just thirty-five by the scale.

(2) T. *Your differences may be due to your choosing different places as marking the mouth of the river. Measure clear out to the place marked North Foreland.* (The children then discussed and decided upon the distance.)

(3) T. *How could such a large seaport as London develop so far up the Thames River? Put up your hands when you are ready. I want to see many of you ready before I call on anybody.* (She then waited about half a minute.)

Martha. Because of the tides.

(4) T. *How do the tides help?*

Martha. I don't know how.

Julian. The tides help to make it a great port. They let the boats come in.

(5) T. *How many agree with Julian?* (A brief discussion followed which brought out the fact that the *high* tides make the river deep enough to let the *big* boats come up. The teacher told of *large* vessels waiting at Gravesend for *high* tide, to ascend the river, and of "locked" docks being used to keep these vessels afloat during *low* tide.)

Written questions presented.—T. *We have here* (indicating the blackboard) *some questions for you. Some you can answer easily and others you will have to think out. Will you read the first question and answer it, Ellwood?* (The full list of questions is printed below.[1])

First written question.—Ellwood read, "How is the city situated with regard to the Thames? See map on page ——." (The pupils turned to a small map of London. Ellwood's answer was vague.)

Another P. The map shows the river running right through London. They have a Hyde Park! (These children lived in the Hyde Park of Chicago.)

Another P. The river looks awfully twisty here—not straight.

(6) T. *What other points about London and the Thames do you find from this map?*

Various P. Many parks. Victory roads. (Other irrelevant answers.)

(7) T. *Do those have anything to do with the Thames? It is not a good answer unless it shows how London is related to the Thames.* (The pupils now held better to the question.)

P. It has many bridges.

Another P. The city extends far along the river, both north and south of it.

[1] The questions for Miss Parker's lesson on London were written on the blackboard as follows:

LONDON

1. How is the city situated with regard to the Thames? See map on page ——.
2. What determined the location of London Bridge?
3. In which direction are the docks from the bridge, and why?
4. How does the location of the docks affect the location of the factories in London?
5. How does the location of the factories affect the location of the living-quarters for workers?
6. Where should you expect the business section to be?
7. Where should you expect the wealthy residence section to be?
8. Why has London become such a great city?

(8) T. *How long is London?*

P. About eighteen miles. (Various other answers to the first question were developed.)

Summing up first question.—(9) T. *Now let us sum up what we have found in answer to the first question.* (As the pupils enumerated their points the teacher wrote them on the board in outline form, thus:

1. On both sides.
2. Winding.
3. 20 miles.
4. Bridges.)

Second question.—P. (Reads from blackboard) "What determined the location of London Bridge?"

(10) T. *If you had visited the Thames River and the site of London before the city was built, you would have seen something like this.* (Then she drew on the board a diagram of the river and described the location of the highlands and the low marshes and swamps.) *When the people wanted to build a bridge over the Thames, where should you say it would have been, judging from this diagram?* (The children were very quiet and considerably puzzled.)

P. (Indicating a certain point on the diagram) Right here, where it is narrowest.

(11) T. *My diagram is not exactly right if the river seems narrower to you at this point. I will change it, because the river is not really narrower there. What do you think, Frank?*

Frank. I should say right here, near the highland; one could easily get at it. (The pupils now became quite active in agreeing or disagreeing with Frank.)

P. I agree with Frank, but I want to ask a question first. (He then went to the board and asked something about the depth of the river. He quickly decided his own idea was not a good one and retired to his seat. After the hour was over, Miss Parker said that this boy was an impulsive thinker and that his self-

checking in this case really represented growth on his part. As a rule the class or teacher had to check him in his impulsive or irrelevant discussions.)

(12) T. *Now let's finish the discussion of Frank's plan before we take up another.* (Several pupils discussed the question, largely in terms of carrying timbers, of easy access to one bank or the other, etc.)

(13) T. *How many are pretty well convinced now that this would be the best place for the bridge?* (Many hands were held up.) *Have you something new to offer, Oliver?* (Oliver started to talk along the same line.)

(14) T. *Yours is just a part of the same general argument. . . . Are you ready to know what really happened? . . . This is the place* (pointing to the diagram) *where the bridge was built. Here the river swings in against the cliff. It was the first place, as people came up the river, where they could find a good spot to build a bridge. . . .* (The teacher then sketched in the bridge on the diagram.)

Third question.—(15) T. *Our next question, Jack.*

Jack. (Reads) "In which direction are the docks from the bridge, and why?"

P. That's the easiest question yet. Seaward.

(16) T. *Yes, that's a good answer; but I mean what cardinal direction—north, east, south, or west.*

Various P. North. West. East.

(17) T. *Isn't it strange that you can't tell me from this small map whether the docks are east, west, north, or south of the bridge! . . . What is the difficulty?*[1] (The period was now at an end; so this problem, together with questions 4, 5, 6, and 7, which dealt with the location of factories and residence sections and the reasons for the greatness of London, were left for the next lesson.)

[1] Miss Parker explained to me later that while the children had attained fair skill in reading directions on large colored maps, they needed more drill in applying the same principles to small city maps.

Growth of diagram summarizes results of thinking.—At the end of the discussion of all the questions, the simple diagram of the bends in the river with which they had begun had been supplemented through answers from the later questions until it showed the docks for various kinds of merchandise, factories of various kinds, residence districts for poor and for rich, etc.

Points of technique briefly noted.—As in the case of the first two lessons which we described, it will be helpful to note certain general characteristics of this London lesson preliminary to our organized discussion of technique which is to be presented in Section IV. Briefly stated, these characteristics are the following:

1. *A deliberate pace prevailed.* For example, in the paragraph numbered 3 in the dialogue, Miss Parker waited about a half-minute after saying: "Put up your hands when you are ready. I want to see many of you ready before I call on anybody."

2. *Evaluation by the pupils was encouraged.* Among Miss Parker's favorite remarks are "Do you think that is a good point?" "Do you agree with that?" "Is that a good argument?"

3. *Standards of good thinking were taught the pupils.* Examples occur in paragraph 7, where Miss Parker emphasized holding to the question by saying, "It is not a good answer unless it shows how London is related to the Thames"; in paragraph 12, "Now let's finish the discussion of Frank's plan before we take up another"; and in paragraph 14, "Yours is just a part of the same general argument."

4. *Summing up the discussion was periodically attended to.* The best example given above is in paragraph 9, which points out that the answers to the first problem were reviewed by a pupil and written on the board by the teacher as a few concise, numbered points.

5. *The thinking was kept organized* by four devices: (1) writing the principal questions on the board; (2) holding to the main point of each discussion (as described under 3); (3) summing up periodically (as described under 4); and (4) plotting

upon a diagram the important data, suggestions, and conclusions as they were accepted.

Experimentation in grading problems, technical data, and activities for fifth-grade geography.—Finally, before turning to Section III of the discussion, in which we shall inquire how skilled problem-solvers think, we may, as a further preliminary to our general conclusions about technique in Section IV, present Miss Parker's own memorandum concerning experimental work in organizing problem-solving lessons in the middle grades. These points she gave me for presentation to my class of teachers before we observed one of her fifth-grade lessons. She wrote as follows:

> Experimental work in teaching geography in this fifth grade is being done in order
>
> 1. To determine what problems are of the right difficulty for children of this age; in other words, to grade problems.
>
> 2. To determine the degree of subdivision of problems necessary and the definite steps in solution that need to be indicated for children of this age.
>
> 3. To grade the map-reading, text-reading, picture-reading, and statistics-reading that are motivated by these problems.
>
> 4. To devise means of establishing thoroughly those principles of interpretation of maps, pictures, statements, and statistics that can be established in this grade.
>
> 5. To devise means of helping children of this age to work independently and to check their own inferences. (Written directions are being used at present in an effort to lessen dependence on the teacher.)
>
> 6. To devise means of getting reactions at each step from *each* individual rather than from only one or two. This is a vital matter in the fifth grade, where basic interpretation habits are being formed. It is a matter that is often neglected where the problem-solving method is dominant.

Conclusion of discussion of actual lessons of Section II. Transition to Section III.—This concludes our long Section II, in which we have presented, in considerable detail, four problem-solving lessons in order to give the beginning teacher a

vivid idea of this type of teaching as it is actually carried on in a progressive elementary school. The seventh-grade lesson on sugar and the kindergarten cardboard-construction lesson gave us general notions of the organization of such instruction. The conversational data given in the second-grade Arab lesson and the dialogue of the fifth-grade London lesson brought us more intimately into the conversational give-and-take between teacher and pupils that characterizes problem-solving discussions. In all the lessons we found the teacher aiding the pupils to get the problem clearly in mind, to make and evaluate suggestions, and to keep their thoughts moving actively along some particular educative line. We found many of the pupils alert and active in suggestion, sometimes keenly critical, and gradually developing in ability from the kindergarten, where they decided how many hinges a door needed, to the seventh grade, where they were ready to consider whether a tariff should be placed on sugar in order to encourage home production. In Miss Parker's final memorandum we found a skilled teacher especially concerned about the issue of grading problems in the middle grades so as to adapt them in general to this grade of pupils and to give even the slow pupils practice in thoughtfully using the technical tools of problem-solving that are used by scientific specialists in geography. We shall now turn to a description of how problem-solving thinking is done by skilled thinkers—notably by great scientists, such as eminent geographers, astronomers, etc.

Section III. How Skillful Problem-Solvers Think

Need for analyzing skill in problem-solving to determine methods.—In our discussions of the teaching of various forms of skill, such as handwriting or reading, we found it necessary to determine how skillful performers behave—for example, how skillful handwriters and readers perform—in order to determine how to give pupils similar skill. In the case of handwriting, for example, we found that careful laboratory ex-

periments were necessary in order to prove that in much expert handwriting the letters are made predominantly with finger movements instead of with arm movements. In the case of reading we found that a variety of types of reading-skill can be distinguished, and that many tests and laboratory experiments have helped us considerably in understanding how skilled reading is done and how to train children to be skillful, resourceful readers.

Similarly, in the case of problem-solving we need a clear understanding of how skillful problem-solvers think in order to train pupils to perform the same type of thinking. As in the case of handwriting and reading, so in the case of thinking, a number of erroneous ideas have prevailed concerning the nature of the processes of skilled performers. We shall not have time or space, however, to discuss these mistaken notions here, but shall turn our attention immediately to an account of the methods of thinking and inquiry used by some of the greatest thinkers; namely, by great scientists as these are described by W. Whewell in his "History of the Inductive Sciences."[1]

Biographies of certain great scientists reveal methods of thinking.—Whewell had made a profound study of the methods and results of most of the great scientists up to his time. In connection with his account of the great astronomer Kepler (1571–1630), he describes methods of scientific study and research in general and at the same time gives an interesting account of Kepler's peculiar traits.

[1] Whewell's work, published in 1837, is an excellent exhibition of careful English scholarship. T. H. Huxley, in "The Advance of Science" (p. 74), characterizes Whewell as a man of "great acquirements and remarkable intellectual powers." It would be well if more persons would secure their ideas of scientific method from such works as Whewell's instead of from Francis Bacon's false theories. In contrast with Bacon's ignorance of actual scientific investigations and his ridicule of the methods of his great scientific contemporaries (such as Copernicus), Whewell proceeded to derive correct notions of the nature of scientific thinking by an examination of the methods actually used by great scientists in their work.

Accounts should include failures as well as successes. Whewell's description.—Kepler's investigations furnish especially good material from which to determine how a great scientist thinks, because he left accounts of his whole process of inquiry, including his incorrect ideas and unsuccessful endeavors as well as the correct ones. With these accounts in mind Whewell wrote the following discussion of how great scientists discover new truths and solve great scientific problems (**17**: Vol. I, pp. 291–292):

Bold guessing.—Advances in knowledge are not commonly made without the previous exercise of some *boldness and license in guessing.* The discovery of new truths requires, undoubtedly, minds careful and scrupulous in examining what is suggested, but it requires, no less, such as are quick and fertile in suggesting. What is invention except the talent of rapidly calling before us many possibilities and selecting the appropriate one? It is true that when we have rejected all the inadmissible suppositions, they are quickly forgotten by most persons, and few think it necessary to dwell on these discarded hypotheses and on the process by which they were condemned, as Kepler has done.

Reasoning on many errors.—But all who discover truths must have *reasoned upon many errors* to obtain each truth; every accepted doctrine must have been one selected out of many candidates. In making many conjectures which on trial proved erroneous, Kepler was no more fanciful or unphilosophical than other discoverers have been. *Discovery is not a cautious or rigorous process in the sense of abstaining from such suppositions.* But there are great differences, in different cases, in the facility with which guesses are proved to be errors and in the degree of attention with which the error and the proof are afterwards dwelt on. Kepler certainly was remarkable for the labor which he gave to such self-refutations and for the candor and copiousness with which he narrated them; his works are in this way extremely curious and amusing and are a very instructive exhibition of the mental process of discovery. But in this respect, I venture to believe, they exhibit to us the usual process (somewhat caricatured) of inventive minds—they rather exemplify the *rule* of genius than (as has generally been hitherto taught) the *exception.* We may add that if many of Kepler's guesses now appear fanciful and absurd, because time and observation have refuted them, others,

which were at the time equally gratuitous, have been confirmed by succeeding discoveries in a manner which makes them appear marvelously sagacious, as, for instance, his assertion of the rotation of the sun on axis before the invention of the telescope. Nothing can be more just, as well as more poetically happy, than Kepler's picture of the philosopher's pursuit of scientific truth, conveyed by means of an allusion to Virgil's shepherd and shepherdess:

> Coy yet inviting, Galatea loves
> To sport in sight, then plunge into the groves;
> The challenge given, she darts along the green,
> Will not be caught, yet would not run unseen.

Devising tests of false suppositions.—We may notice as another peculiarity of Kepler's reasonings the length and laboriousness of the processes by which he discovered the errors of his first guesses. One of the most important talents requisite for a discoverer is the *ingenuity and skill which devises means for rapidly testing false suppositions* as they offer themselves. This talent Kepler did not possess; he was not even a good arithmetical calculator, often making mistakes, some of which he detected and laments, while others escaped him to the last.

Willingness to abandon false hypotheses.—But his defects in this respect were compensated by his courage and perseverance in undertaking and executing such tasks; and, what was still more admirable, he never allowed the labor he had spent upon any conjecture to produce any reluctance in *abandoning the hypothesis as soon as he had evidence of its inaccuracy.* The only way in which he rewarded himself for his trouble was by describing to the world, in his lively manner, his schemes, exertions, and feelings.

Scientists' method of solving problems. Bold guessing, erroneous guessing, devising tests, abandoning errors.—Careful reading and study of the above quotation will give us most of the ideas that we need in order to understand the thinking processes in problem-solving. We may list them briefly as follows:

1. Bold guessing as the basis of fertile suggesting.

2. Erroneous guessing—"All who discover truths must have reasoned upon many errors to discover each truth."

3. Skill in devising means of testing the truth of guesses.[1]

4. Willingness to abandon an erroneous guess or untenable hypothesis.

Kepler succeeded, though handicapped by slowness and by poor calculations.—In addition to these characteristics of reflective thinking as found in the work of great scientists, it is interesting to note that Kepler succeeded wonderfully in spite of certain personal handicaps. For example, "He was not even a good arithmetical calculator, often making mistakes, some of which he detected and laments, while others escaped him to the last." When one recalls what an important factor mathematical precision is in modern scientific method, one can appreciate what a handicap Kepler labored under. Moreover, he was not *rapid* in devising means of testing his suppositions, but he compensated for this lack "by his courage and perseverance in undertaking and executing such tasks." In general, these characteristics of Kepler suggest that a person—for example, a pupil—may be a very competent thinker and, in the long run, very successful in solving problems, and yet be very slow and laborious in his methods of criticism and verification.

[1] Huxley ("The Advance of Science," p. 33) supports Whewell's statement of the place of guessing, or conjecturing, in careful scientific thinking, in the following words:

"It is a favorite popular delusion that the scientific inquirer is under a sort of moral obligation to abstain from going beyond that generalization of observed facts which is absurdly called Baconian induction. But anyone who is practically acquainted with scientific work is aware that those who refuse to go beyond fact rarely get as far as fact, and anyone who has studied the history of science knows that almost every great step therein has been made by the "anticipation of nature"; that is, by the invention of hypotheses which, though verifiable, often had very little foundation to start with and, not unfrequently, in spite of a long career of usefulness, turned out to be wholly erroneous in the long run.

"The geocentric system of astronomy, with its eccentrics and its epicycles, was an hypothesis utterly at variance with fact, which nevertheless did great things for the advancement of astronomical knowledge. Kepler was the wildest of guessers. Newton's corpuscular theory of light was of much temporary use in optics, though nobody now believes in it."

Scientific biographies reveal how we think.—Such accounts as Whewell gives of the personal efforts of scientific workers to solve problems help us to understand the actual mental processes involved in skilled thinking. On the basis of this understanding we can proceed to give pupils practice in doing similar thinking. In recent years the psychological writings of William James and John Dewey have especially emphasized the nature of these thinking *processes*. From their discussions educators may derive help in understanding how we think and how to train pupils in thinking.

Dewey's notable account of how we think.—Professor John Dewey is himself one of America's greatest thinkers and is at the same time a trained psychologist who has specialized in the study of thinking processes. Consequently his book "How We Think" (1910) deserves very special study. It should be read carefully time and again in order to grasp its detailed meanings. I have known a number of students and even writers upon education who have studied the book superficially and, as a consequence, failed to grasp some of its most significant points. Some of his most fundamental ideas, for our purposes, are contained in the three following paragraphs. The headings are not in the original, and the paragraphing is slightly altered.

Origin in some perplexity.—We may recapitulate by saying that the origin of thinking is some perplexity, confusion, or doubt. Thinking is not a case of spontaneous combustion; it does not occur just on "general principles." There is something specific which occasions and evokes it. General appeals to a child (or to a grown-up) to think, irrespective of the existence in his own experience of some difficulty that troubles him and disturbs his equilibrium, are as futile as advice to lift himself by his bootstraps.

Form a tentative plan based on analogous past experience and prior knowledge.—Given a difficulty, the next step is suggestion of some way out—the formation of some tentative plan or project, the entertaining of some theory which will account for the peculiarities in question, the consideration of some solution for the problem. The data at hand cannot supply the solution; they can only suggest it.

What, then, are the sources of the suggestion? Clearly past experience and prior knowledge. If the person has had some acquaintance with similar situations, if he has dealt with material of the same sort before, suggestions more or less apt and helpful are likely to arise. But unless there has been experience in some degree analogous, which may now be represented in imagination, confusion remains mere confusion. There is nothing upon which to draw in order to clarify it. Even when a child (or a grown-up) has a problem, to urge him to think when he has no prior experiences involving some of the same conditions is wholly futile.

Plan not accepted until carefully examined and criticized.—If the suggestion that occurs is at once accepted we have uncritical thinking, the minimum of reflection. To turn the thing over in mind, to reflect, means to hunt for additional evidence, for new data, that will develop the suggestion and will either—as we say—bear it out or else make obvious its absurdity and irrelevance. Given a genuine difficulty and a reasonable amount of analogous experience to draw upon, the difference, *par excellence*, between good and bad thinking is found at this point. The easiest way is to accept any suggestion that seems plausible and thereby bring to an end the condition of mental uneasiness. Reflective thinking is always more or less troublesome, because it involves overcoming the inertia that inclines one to accept suggestions at their face value, it involves willingness to endure a condition of mental unrest. . . . Reflective thinking, in short, means judgment suspended during further inquiry, and suspense is likely to be somewhat painful. . . . The most important factor in the training of good mental habits consists in acquiring the attitude of suspended conclusion and in mastering the various methods of searching for new materials to corroborate or to refute the first suggestions that occur. To maintain the state of doubt and to carry on systematic and protracted inquiry—these are the essentials of thinking. (**9**: 12–13)

Dewey's text; state of doubt plus systematic and protracted inquiry.—In general this quotation from Dewey's work gives us the same notions of careful inquiry that we derived from the accounts of Kepler's thinking; namely, (1) prolonged careful search for suggested solutions, (2) careful, open-minded evaluation and testing of each suggestion or plan, (3) suspended judg-

ment, patience to wait until the true solution has been discovered and verified. Since the language of Dewey's paragraphs varies from Whewell's account of Kepler, we can pick up from Dewey some excellent additional phrases to use in our thinking about training in problem-solving. Perhaps the best of these are contained in the final sentence, "To maintain the state of doubt and to carry on systematic and protracted inquiry—these are the essentials of thinking."

With such an understanding of the nature of skillful problem-solving as we can derive from these accounts by Whewell and Dewey, and from the accounts of actual problem-solving lessons given earlier in the discussion, we can now proceed to summarize our ideas of how to train pupils in problem-solving.

Section IV. Rules for training Pupils in Reflective Problem-Solving

Assume suitable problem, adequate experience, and interesting dilemma.—At the outset of this section we may assume (1) that a problem adapted to the pupils' maturity and experience is to be solved; (2) that the pupils have analogous previous experience and related information needed for the solution or that they know how to proceed to get this information; and (3) that an interesting dilemma, or quandary, has been created. In other words, we shall assume that a suitable problem for solution has already arisen from some puzzling situation and that the pupils are interested to solve it.

Interest in problem increased by competition.—The pupils' interest may arise from the mere instinctive interest in thinking which we described early in the chapter and which leads many adults and children to enjoy playful puzzling about all sorts of perplexing, strange, unexpected, or disconcerting occurrences. This instinctive interest easily maintains itself and is greatly aided by the instinctive interest in *competition*. Pupils compete to make appropriate suggestions, to criticize the sugges-

tions of others, and, in general, to "win out" personally in achieving the solutions of the major problem and its many subdivisions.

Teacher's threefold task.—With such an interesting situation created, the teacher's task becomes one of (1) guiding the thinking of the pupils; (2) aiding them when confronted by difficulties that are beyond their powers or which they would waste their time in solving; and (3) eventually making them aware of what good thinking is, so that they may consciously strive for it during their thinking, just as they strive to improve their handwriting or their reading.

Thorndike's parallel for guiding thinking. *Finding the road to grandpa's.*—The general nature of a teacher's activity in assisting pupils in problem-solving is cleverly suggested by Thorndike when he compares it to assisting a child to discover the road to grandpa's house instead of merely taking him by the hand and leading him there. In such guidance, says Thorndike,

> You must make sure (1) that the youngster knows what place he is to try to reach and (2) keeps it in mind. (3) He must also at least know that to get to a place [or to solve a problem] you must keep going and not lie down and go to sleep; (4) he must have some knowledge of the direction in which the house lies and of the roads and woods and valley in the neighborhood.
>
> He starts off correctly and at a crossroad [or alternative in the problem] turns to the left.
>
> "What did you do that for, John?" [asks the guide]. "I don't know." "Where are you going?" "To grandpa's." "Where does that road go?" "To the schoolhouse." "Is that on the way to grandpa's?" "I don't know." "What comes after the schoolhouse if you go down this road?" "The church." "How long does it take to go from grandpa's to the church?" "Oh, a long time." "Is grandpa's near the church?" "No; it is a long way." "This road goes to the church. Is it a good way to go to grandpa's?"
>
> If your boy is bright enough, he now turns to the right, but soon comes to the end of the road [or the suggestion that is being followed in trying to solve the problem]. "Where do I go now?" says he. "Where do you think?" "I think we go through that field." "Well, try it and see."

You rapidly approach a pond [or discouraging difficulty in the problem], and the boy sits down and cries. "I can't find the way to grandpa's." "What's the trouble?" "You can't get around this pond, it's all swampy." "Do you have to go around it?" "Yes; grandpa's is up there and you have to go around the pond." "Go and look at the pond [or examine the difficulty] and see if you can find something that will help you to get to grandpa's."

And so on, with constant stimulation to the examination of each situation confronted, and with the selection and rejection of ways in the light of knowledge of their consequences, until grandpa's house is reached, or until the problem is solved. (**12**: 150)

Five specific rules for conducting problem-solving lessons.—The general impression of the methods of guiding pupils in problem-solving which we derive from this little imaginary story may now be formulated into the specific rules given below. These rules summarize and definitize most of the points of technique brought out in the sample lessons in Section II, plus the characteristics of skillful problem-solving described in Section III of the discussion.

1. **Define problem.**—Aid the pupils to define the problem clearly. This rule is important in good individual thinking, but is particularly important in group thinking. For example, while writing the preceding paragraphs I was disturbed by two well-intentioned, intelligent persons who were arguing most vigorously but quite uselessly, because they were talking at cross purposes. I said to them: "Do you folks realize that you are not talking about the same thing? One of you misunderstood what the other asserted a moment ago." Upon a little inquiry my statement proved to be true, the parties found themselves in perfect agreement, and I could proceed with my work undisturbed. In college debates we find some of our best examples of care in defining the question or problem for a group discussion. Many hours or days or weeks may be spent in getting the problem clearly in mind and giving it such a satisfactory wording that definite, profitable debating may be undertaken. In our seventh-grade lesson on sugar production we noticed that Miss

Parker had the class formulate a definite proposition as the basis of the discussion, and then wrote it on the board so that all got it clearly in mind. In our fifth-grade lesson on London we found that she had written eight carefully phrased problems on the board as the basis of the lesson and that each one that needed further defining received it in the discussion.

2. **Keep problem in mind.**—Help the pupils to keep the problem clearly in mind. This rule is necessitated by the large waste of time and energy that results from being sidetracked, even after the problem has been clearly defined. "Scatterbrained thinking" is a term to designate thinking that does not hold definitely to the question. In deliberative bodies that have good rules of procedure one important duty of the presiding officer is to hold the discussion to the question before the house and to rule out digressions. In the lessons in Section II we saw frequent occasions for this procedure; for example, in the second-grade lesson a child began to talk about dressing a French doll instead of an Arab doll, and in the seventh-grade sugar-production lesson the teacher had difficulty in restraining a boy from discussing profitableness instead of possibility. Through such guidance the pupils learn that "keeping to the question" is a characteristic of good thinking. They come to realize this from repeated suggestions from the teacher, such as Miss Parker's remark (when the class was discussing the relation of London and the Thames), "It is not a good answer unless it shows how London is *related to the Thames*."

3. **Stimulate suggestions.** *Analysis, recall, guesses.*—Aid the pupils to make suggestions by getting them (1) to analyze the problematic situation into parts, or elements, each of which may suggest a solution; (2) to recall previously-experienced similar cases or, as in arithmetic and geography, general rules that may apply; (3) to formulate from vague guesses definite hypotheses or tentative plans.

Control of one's own associations is difficult. Galton.—These rules are among the most difficult to explain and apply, because

fertility in suggesting is probably less easily controlled by a thinker and, consequently, by a pupil than any other phase of thinking. This fact is picturesquely described by the eminent English scientist Sir Francis Galton, a member of the noted Darwin family and well known as founder of the eugenics movement. He compares his mind, when solving a problem, to two rooms: one an "audience chamber," in which the main ideas of the moment have the floor, and the other an "antechamber," in which there is a throng of those ideas that are vaguely present in his mind at the time. "Successful progress of thought," he says, "seems to depend, first, on a large attendance in the antechamber. . . . [This] thronging of the antechamber is, I am convinced, altogether beyond my control; if the ideas do not appear, I cannot create them nor compel them to come."

Maneuvers for attracting appropriate suggestions.—While Galton's statement that we cannot compel appropriate ideas or suggestions to appear is true, yet we can go through certain maneuvers that will tend to attract or arouse or recall them to our minds.

a. Analytic attention focuses upon one element at a time.—One such maneuver is to proceed to focus our attention on one part of the problematic situation at a time. For example, in the sugar-production problem the class divided the issue into cane production and sugar-beet production and then focused their attention on the former. Holding, then, to the problem of growing more cane, a host of issues were suggested, such as the number of growing-days, competition with Cuban labor, etc. Similarly, in fitting the front to the cardboard store in the kindergarten, attention was focused for a time on the *width*, and suggestions "sprouted" for determining this, for marking straight lines by folding, etc. In studying the growth of London the fifth-grade class was found breaking the issues up into such problems as where the docks would be located, where the warehouses would be located, and similar questions relating to factories, homes for workers, fine-residence districts, etc.

Each focused element brings its suggestions. By dividing we conquer.—Thus, by actively dividing a problematic situation into certain of its elements, and purposely attending to one of these for the time being and neglecting others, we open up many sources of suggestion which might not have opened so soon had we merely passively regarded the large problem and waited for something to happen. The teacher can often help a class over an apparently insurmountable difficulty in their problem by merely suggesting that they devote their attention to a certain phase of it which she mentions, or by naming a number of alternative phases, one of which they take up and examine.[1]

b. Recalling similar cases and rules that apply. Degrees of assistance.—Recalling previously-known similar cases or general rules that may apply is particularly easy in arithmetic or geography where the material is systematically organized. For example, when asked what conditions must be studied in planning to grow sugar cane, a pupil might say to himself, "Let me see—what conditions did we take up for growing cotton and corn?" Similarly, if the fifth-grade pupils who had studied London should later study the growth of New Orleans, they might say, "Let's see—what were some of the factors we brought out in the case of London?" In the case of mathematics the procedure of recalling the desired rule is often aided mechanically by turning the

[1] The proper location of *analysis* as a method of control in problem-solving has puzzled me more than any feature of this section. Its value is quite obvious and has been especially emphasized by William James (see his "Principles of Psychology," Vol. II, pp. 339–340). Whether (1) to locate such purposeful, analytic concentration of attention under rule 3, as one means of controlling suggestions, or (2) to give it an independent place has been my dilemma. In placing it as a control device under the more general heading of stimulating suggestions, I have been guided largely by my own experience in solving geometry exercises. In this case, it seems to me, I commonly focus my attention on a certain angle or a certain line, *in hope* that it will suggest some further possibilities of procedure. By thus controlling our attention we discount somewhat Galton's point about being unable to control the thronging of the antechamber, because the aspect attended to will, figuratively speaking, invite its own crowd to the room.

pages until an appropriate one appears. The practice of looking up some related discussion in a book is a device that many students and scientists use to start suggestions that may help solve the problem. Such systematic recall may be aided by the teacher in various degrees. For example, in the kindergarten the teacher may make a very general suggestion, such as "How can we find out how many hinges a door should have?" or the more definite suggestion "What shall we look at to determine how many hinges a door should have?" or the very specific suggestion "Look at the doors in this room to see how many hinges we ought to have on our door."

c. Guessing. Leaps in the dark definitized as hypotheses.—Guessing and formulating definite hypotheses from the more vague guesses are processes that we found especially emphasized in Whewell's description of scientific procedure. Recently I heard a chemist say that for two years he had tried without success to obtain a certain reaction in his laboratory. He had tried a score of devices in vain. One day, while walking across the campus, it occurred to him to try out a procedure that he had frequently thought of but had always mentally discarded because it seemed too foolish. He went to his laboratory, tried it, and it proved to be the long-sought method. Provided that pupils are seriously concerned with their problems and have a fund of related experiences, such courageous guessing—leaps into mental darkness—should be encouraged. In class discussions, in which many such pertinent guesses are rapidly made, they may be immediately noted on the blackboard, and then the more probable ones taken up and definitely formulated and examined to determine their value.[1]

[1] In high-grade scientific investigations this "method of multiple hypotheses" is highly esteemed. Its general character is brought out in the following quotation from Dewey ("How We Think," p. 75): "Suggestion is the very heart of inference; it involves going from what is present to something absent. Hence it is more or less speculative, adventurous. Since inference goes beyond what is actually present, it involves a leap, a jump, the propriety of which cannot be absolutely warranted in advance, no

4. **Evaluate suggestions.** *Open-mindedness, criticism, verification.*—Encourage pupils to evaluate suggestions carefully by getting them (1) to "maintain the state of doubt" (that is, to delay their final conclusion and to remain open-minded until the matter is finally proved), (2) to criticize thoroughly all suggestions (that is, to anticipate mentally objections that might be made to them or consequences that might follow), (3) to verify suggestions and conclusions by reference to facts as revealed in ordinary experience or in miniature experiments or in standard scientific treatises. The subdivisions of this rule we found especially emphasized in the last paragraph from Dewey at the close of Section III.

a. Maintain state of doubt. Avoid pugnacious, stubborn argument.—The rule about suspending judgment defines the general spirit that should prevail in the class and in the mind of each inquirer. It raises an interesting question concerning the amount of argument that should be permitted in classes. While argument may be very stimulating to thought and interest, the spirit of argument is often just the opposite of the spirit of open-minded inquiry. Argument is often closely akin to fighting: the more your opponent hits you, the harder—and frequently the more blindly—you hit back. I have seen pugnacious, argumentative boys in upper-grade classes who cared nothing about careful evaluation of their suggestions, but were concerned merely to maintain these at all costs. Where such a spirit is allowed to become strong in a class, the opportunities for training in impartial, open-minded, scientific inquiry are jeopardized. The teacher should herself be a model of impartiality in inquiry; she should make this the dominant spirit of the teaching and should

matter what precautions be taken. Synonyms for this are *supposition, conjecture, guess, hypothesis,* and (in elaborate cases) *theory*. Since suspended belief, or the postponement of a final conclusion pending further evidence, depends partly upon the presence of rival conjectures as to the best course to pursue or the probable explanation to favor, *cultivation of a variety of alternative suggestions* is an important factor in good thinking."

train each pupil to esteem fair-minded search after truth as a high ideal and a desirable personal attribute.

b. Acquire the attitude of criticizing suggestions. Anticipate objections and consequences.—Teaching students to criticize—to anticipate mentally possible objections to, and consequences of, a suggestion or scheme—appears as the notable feature of the work of certain teachers. The actual calling to mind of specific criticisms is a matter of fertility of suggestion, but the general attitude of testing mentally each suggestion before adopting it can be maintained even in cases where one may be unsuccessful in calling to mind specific objections and consequences.

c. Verify by known conditions, miniature experiments, and scientific treatises.—Closely related to this mental testing is the verification of suggestions and conclusions by reference to known facts as revealed in our ordinary experience or in standard scientific treatises. For example, in the kindergarten construction lesson a child who wanted to have only one hinge on a door should have felt that this was probably undesirable after examining a number of doors and finding none with one hinge. Of course, he might have tried one hinge and found that it would not work. Wherever possible, however, in social life, people try to avoid an expensive, poorly conceived experiment if it is possible to determine in advance, from facts already known, that it will be a failure. Often scientific experimentation in a laboratory consists in carrying on some process in miniature, or on a small scale, to see if it will work. In primary construction classes a similar practice is often followed by letting one child try out a suggestion before others of the class adopt it. As further examples of the process of verifying suggestions, we found the pupils in the Arab-doll lesson referring to standard pictures of Arab life to verify some of their plans for the Arab costumes; and in the sugar-production lesson we found the teacher provided with a report of the Department of Agriculture and a special scientific treatise on sugar, to use in checking up the conclusions that the pupils reached.

5. **Keep discussion organized.** *Outlines, graphs, summaries.*—Help the pupils to keep the discussion organized by proceeding (*a*) to build an outline of the main ideas on the board as they appear in the discussion; (*b*) to use diagrams and graphs for condensing fundamental facts and relations into a simple picture; (*c*) to take stock from time to time by summarizing the ground covered and the next steps to be taken; (*d*) to formulate from time to time, as definite propositions, the net outcome of the discussion.

These last rules are very objective and easy to understand and illustrate. We found an example of building an *outline* on the blackboard in the sugar-production lesson, of the effective use of a *graph* to summarize the sugar situation in the same lesson, and of a *diagram* to clarify and summarize the development of London in the fifth-grade lesson. We found the second-grade class *taking stock* of their plans for the Arab costume, and the fifth-grade class *summarizing* their facts about the relation of London and the Thames. The *concise formulation of definite propositions containing the net outcome* of the discussion occurred several times in the sugar-production and London lessons.

Summary of rules for conducting problem-solving lessons.—The five major rules with their subdivisions presented above describe many, if not most, of the special practices that should characterize a teacher's guidance of pupils during a problem-solving lesson. They may be summarized in more concise form in the following statement:

To stimulate and assist pupils in reflective problem-solving the teacher should

1. Get them to define the problem clearly.
2. Aid them to keep the problem in mind.
3. Get them to make many suggestions by encouraging them
   a. To analyze the situation into parts.
   b. To recall previously-known similar cases and general rules that apply.
   c. To guess courageously and formulate guesses clearly.

4. Get them to evaluate each suggestion carefully by encouraging them
   a. To maintain a state of doubt or suspended conclusion.
   b. To criticize the suggestion by anticipating objections and consequences.
   c. To verify conclusions by appeal to known facts, miniature experiments, and scientific treatises.
5. Get them to organize the material by proceeding
   a. To build an outline on the board.
   b. To use diagrams and graphs.
   c. To take stock from time to time.
   d. To formulate concise statements of the net outcome of the discussion.

Primary education no longer mere arbitrary memorization.—The type of training summarized in the foregoing rules differs greatly from that which prevailed in many schools a generation ago and which was seriously advocated by a prominent American writer on education as late as 1904, when he said that the age before twelve is the age for "arbitrary memorization, drill and habituation, with little appeal to the children's interest or understanding." Such a theory was based on the assumption that young children cannot succeed in reflective problem-solving. It requires little observation to show that young children solve their problems by the same processes of making and evaluating suggestions that ordinary adults use. The great growth that may be made by pupils in reflective ability, through providing opportunities from the kindergarten up, appears when one contrasts the recitations observed in the upper grades of an old-fashioned memorizing school with those in the same grades of a progressive school in which problem-solving methods prevail in construction, expression, history, geography, and other subjects. In such a progressive school pupils in the upper grades are prepared to attack technical problems, such as increasing American sugar production, in the effective manner described in this chapter and with a mastery of technical devices of research and inquiry not possessed even by some adults who have had a college education.

Both routine drill and problem-solving have a place.—Let us hasten to say, however, that this emphasis on problem-solving should not lead to a neglect of routine drill of the type that prevails in the modern scientific teaching of handwriting, spelling, reading, and arithmetic. The necessity of such drill has been amply demonstrated in scientific investigations, and its presence in the school need not interfere at all with the adequate organization of problem-solving. Both may proceed on the same day without mutual interference; for example, during the handwriting and spelling periods the most intense, gameful, effective drills may be carried on with little or no problem activity, while in some of the history and geography periods the most intense reflective problem-solving may prevail.

Reasoning not incompatible with routine or imitation.—The fact that reasoning is not incompatible with routine or with imitation has been most effectively demonstrated by Professor E. L. Thorndike in an article entitled "Education for Initiative and Originality." (15.) Some of his evidence is contained in the following quotation:

> During the past month I have been studying the ratings of sixty electrical engineers employed by the Westinghouse Company and rated by the company's officers for originality and seventeen other qualities, such as thoroughness, knowledge, industry at routine tasks, and the like. Far from there being any antagonism between originality and industry at routine tasks, or between originality and common sense, or between originality and system, there is a positive correlation, and one as close as that between industry and enthusiasm or that between thoroughness and system.
>
> The truly independent thinker does not make less use of other men's ideas than [does] the servile thinker, but more. The expert man of science or law or business has a thousand masters, while the servile mind has but a few. The truly independent thinker does not put less faith in his masters than [does] the servile mind. He puts more faith in them, but he chooses the right ones to put his faith in. The servile mind has faiths that seem strong only because he never questions them. His faith in Jones's liver pills or the divine right of kings

is really at the mercy of any new quack or Napoleon. In fact, a good definition of intellectual independence is "*reasoned dependence.*"

The truly initiating mind does not imitate less, but more. It imitates more men, in more fields, in a greater variety of conditions. But here again it is *reasoned* imitation; and out of multifarious reasoned imitatings comes—to him who has the capacity, [who has] insight to discern, and the zeal to take—the profitable risk, the hopeful leap in the dark, the courageous step upward where no foothold may be found. (**15**: 407)

Give both habits and standards of good thinking.—Such training in problem-solving should not only give pupils greater skill in solving problems along special lines, such as construction or geography, but it should also make them eventually clearly aware of what the attributes of good thinking are. For example, we suggested that pupils should come to esteem open-minded, impartial, suspended judgment as an ideal, as a personal attribute which they desire to possess. Similarly, we suggested that they learn to be on their guard to hold to the question under discussion. Again, we might have noted under rule 5 that pupils should learn to appreciate the value of outlines, graphs, diagrams, and summaries as aids to effective thinking, and consciously strive to use these when appropriate occasions offer.

"Cultivating originality." *What does it mean?*—The foregoing discussion helps us to define clearly what we mean by "cultivating originality," a phrase that is extensively but often vaguely used in many educational discussions. Very commonly such discussions consist merely of vicious attacks upon drill, routine, memorizing, and imitation, with strenuous appeals to rid the schools of these and to substitute, instead, training in originality and initiative. We have called attention in the preceding paragraphs to the fallacy of this position. So confused, however, is the issue concerning the proper balancing of reflective, original thinking, on the one hand, and routine drill and imitation, on the other, that we shall note a few more points concerning it.

Capacity for original thinking is inborn, varies between individuals, and is often specialized.—In trying to render our discussion concrete we may think of Edison, Darwin, Newton, and other great originators and inventors as typifying great capacity for original thinking. At the opposite extreme we have the feeble-minded, many of whom may be able to learn such routine tasks as washing dishes or dusting, but none of whom have much ability to solve problems. It is perfectly clear from scientific studies of geniuses and the feeble-minded that the differences between them are due to inner characteristics of the individuals, usually inherited characteristics. These differences cannot be overcome by training. You cannot make an Edison out of a feeble-minded person. In the intermediate ranks as well, between the original geniuses and the feeble-minded, the capacity for original thinking is determined by the individual's native endowment: if he is well endowed by nature he *may* become a skilled thinker; if he is poorly endowed the best training will still leave him a poor thinker. Moreover, his capacity for original thinking may be specialized; for example, a boy may prove quite ingenious in devising mechanical appliances, but fail in working original problems in mathematics. Similarly, a person may rank high in the capacity for original thinking in mathematics, but fail in making original compositions in music, or writing original poems, or devising original plots for novels. For our present purposes it is sufficient if we can get the teacher to think of each pupil as possessing a certain amount of native capacity or incapacity for original thinking. Her task is to cultivate each pupil's capacity quite specifically. If he is brilliantly original in geography give him large opportunities; if he is rather stupid and unoriginal in geography give him some small, easy problems that will give practice for what little talent he possesses. If he is capable in mathematical reasoning, cultivate his originality there. In every case treat each pupil sympathetically so as to develop such talents as he does possess for the good of himself and society.

The pupil must succeed in order to improve.—Such sympathetic treatment may be further justified by the scientific fact that in any type of learning a pupil learns through his successes. It is the successful performances, not the unsuccessful ones, that establish the correct habits in solving problems and doing original thinking, just as in learning spelling or handwriting. A pupil who never succeeds in solving an original problem will not learn to solve original problems. Owing to the fact that problem-solving, as a rule, necessarily involves erroneous guesses and the testing of these, the teacher is confronted with a very delicate task in determining just how difficult the problems should be for each pupil, and just how much aid to give him in order that he may succeed and yet be required to do sufficient mental experimentation to secure the necessary practice.

Standardized, graded, printed problems with teachers' manuals.—Great help will be afforded in this dilemma when we have developed in each grade, for each subject, standardized, ready-made, published problems varying from easy ones, for the dull pupils, to those of sufficient difficulty to challenge the ability of the best thinkers in the class. We noticed how Miss Parker was engaged in devising such problems with the necessary data for fifth-grade geography. (For other examples see references 1, 4, and 5 at the end of this chapter.) However, the mere possession of such suitable ready-made problems in itself will not assure profitable problem-solving activity by the pupils. This fact is illustrated by the frequent mechanical teaching of arithmetic (even when the class possesses excellent textbooks) owing to the lack of skill on the part of the teacher, who reduces the pupils' activities to mere unintelligent "ciphering." Hence, while well-made printed problems in geography, history, civics, and other subjects will greatly assist inexperienced teachers to adopt problem-solving methods, the successful use of the latter will depend upon a thorough mastery of the technique of teaching which we have described in this chapter. Fortunately teachers' manuals in the various subjects

are now being published which contain detailed instructions for helping teachers to use problem-solving methods in connection with particular textbooks in geography, arithmetic, and other subjects. When these manuals have become as refined in their suggestions as are the manuals for teaching beginning reading (described on page 124), we may hope for much wider successful use of problem-solving methods by teachers in various subjects.

Individual solutions during supervised study.—The possession of printed, standardized, graded problems in the various subjects will also make it possible for pupils individually to puzzle out the solutions during supervised study periods, as they frequently do in arithmetic. Such practice should supplement the training in group discussions of problems which we have illustrated at length in this chapter.

Individual differences. *Vary recitations for the timid, the aggressive, the slow, the impulsive, etc.*—In the problem-solving recitation the teacher must provide for individual differences by calling on pupils according to their capacities and temperaments. For example, for the *dull* pupils, those who have little native capacity, she will save the easiest questions, remembering that they need to succeed in order to profit. The *slow but capable* thinkers will be taken care of by slowing up the pace frequently for their especial benefit. The *timid but capable* thinker will be watched carefully, and probably given at first easy questions that can be answered in a few words. As he acquires confidence from his successful answers to these, he may eventually lose his timidity in this particular class. The *impulsive* thinker, who does not stop to evaluate his suggestion before popping it out, will need to be restrained, possibly by promising to ignore him if he continues wildly to make suggestions, but to favor him after he has made a well-considered one. The *argumentative quibbler* will need his spirit changed by being made to realize that the class does not care for his pugnacious, stubborn adherence to a suggestion, but will welcome him if he really tries to aid in an impartial inquiry for the true solution.

Group solution of large problems often overlooks the timid and slow.—It is in problem-solving which centers in large group undertakings that the teacher needs particularly to be self-possessed and resourceful in providing for individual differences. For example, one sixth-grade class spent twelve weeks on the topic "Ships and shipbuilding." In carrying on their work the pupils undertook a variety of problems of an expressional character. In such teaching the more capable pupils exhibit so much talent in planning and devising things to do that they are likely to monopolize the interest of the teacher, leaving little or nothing of a problem type for the slow or the timid pupils. This fact led Miss Parker, who had organized this twelve weeks' unit, to emphasize the fact, as we noted above, that in many problem-solving lessons the slow pupils are left out of the game.

Conclusion of chapter on problem-solving.—We opened this chapter with an account of the part played by problem-solving in social life. We found both practical and speculative problems interesting children and adults. We found problems of many types, such as mechanical, diplomatic, moral, æsthetic, mathematical, etc. In Section II we presented in detail four actual lessons which gave us concrete pictures of the conversational reflective activity that prevails in skillfully conducted problem-solving discussion lessons. In Section III we showed how great problem-solvers think. We found them making many suggestions, evaluating these carefully and discarding the erroneous ones, and maintaining an unbiased, impartial attitude in their conclusions. From Sections II and III we derived a number of rules for training pupils in problem-solving, which we presented in Section IV. We suggest that the reader learn the summary of these rules as given on page 323 and then, with concrete pictures of the actual lessons given in Section II, plan to undertake, at least occasionally, to conduct problem-solving lessons in her own teaching. We prophesy that if she is a good thinker herself, she will find great pleasure in trying to develop skill in this important type of artistic teaching.

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Scientific method.—16. Huxley, T. H. *The Advance of Science*. (Quoted on page 311.)

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CHAPTER XI

SKILLFUL SILENT READING

Main points of the chapter.— 1. The large amount of reading matter that Americans can purchase for twenty-five cents illustrates the great opportunities for silent reading in this country.

2. The need for skill in such reading is shown by the manner in which it contributes to improve health, afford recreation, and increase good will and social service.

3. In order to grow in skill in silent reading, a pupil needs an interest in it, a stock of experiences and ideas with which to interpret what he reads, a large, automatic reading vocabulary, and practice in various types of cursory reading and studious reading.

4. Some second-grade and seventh-grade lessons are described at length to illustrate the special technique of organizing practice in silent reading.

5. These are followed by a systematic description of examples of silent-reading exercises of many types, including cursory newspaper-reading, the detailed analysis of arithmetic problems, the determination of the truth of historical statements, etc.

Third "thoughtful process" of Part II.—"Skillful silent reading" is the third of the "four thoughtful processes" to be considered in Part II of this book. The two discussed in the preceding chapters were "understanding social life" and "problem-solving, or practice in thinking." Our study of the part played by these two in a progressive elementary school gave us some impression of the rich intellectual life which prevails there and of the sympathetic insight into contemporary civilization which the pupils receive. It seemed desirable to give this impression before discussing silent reading, since the organization of the latter depends so much upon the opportunities provided for acquiring ideas and solving problems in history, biography, community life, geography, literature, and science.

Training in silent reading is also bound up with our discussion of forming habits of enjoying leisure (which is to be discussed in Chapter XIV), as will be brought out in Section I of the present chapter.

Review of Chapters V and VI, on reading.—As an elementary skill, beginning reading was thoroughly discussed in Chapter V. The two big ideas presented there were (1) that pupils should be taught reading, from the start, as a process of acquiring interesting, meaningful experiences, and (2) that practice in phonetic analysis makes them independent and accurate in recognizing new words.

By the end of the second grade the brightest pupil, we found, could read easy new material more rapidly than he could clearly enunciate the words. This relation between silent reading and oral reading was canvassed scientifically in Chapter VI along with other problems. Our principal practical conclusions in that chapter were (1) that silent reading requires special practice, (2) that phonetic training is desirable to make accurate readers, (3) that the difficulties of poor readers can be scientifically diagnosed and remedial measures prescribed, and (4) that skillful silent reading is active selective thinking, often closely related to acquiring ideas and solving problems. This last point led us to postpone the special discussion of silent reading until we had studied the processes of acquiring ideas and solving problems.

Divisions of the present chapter.—We are now prepared to proceed with the discussion of training pupils to be skillful silent readers. We shall organize this discussion under the following main headings:

I. Social opportunities and need for skillful silent reading (p. 334).
II. What a pupil needs in acquiring skill in silent reading (p. 340).
III. Practice exercises in silent reading (p. 351).
  A. Sample lessons from second and seventh grades (p. 352).
  B. Systematic description of devices (p. 367).
    1. Developing interest (p. 367).
    2. Giving ideas and meanings for interpreting reading (p. 370).

3. Building up the pupil's reading vocabulary (p. 371).
4. Practice in cursory and in reflective reading (p. 373).
a. Exercises in cursory, unreflective reading (p. 373).
b. Exercises in reflective, studious reading (p. 378).

Section I. Social Opportunities and Need for Skillful Silent Reading

Opportunities. *Weekly periodicals. Ninety large magazine pages a week delivered at your door for four cents.*—The opportunities for silent reading may be illustrated by ascertaining how much high-grade reading matter can be purchased for twenty-five cents a week. To begin with, our leading weekly magazine, which advertises its sales as "more than two million and a quarter weekly," can be purchased for five cents; or if the annual subscription rate of two dollars is paid, the weekly cost is less than four cents. For this amount even a remote resident on a rural mail-delivery route may receive weekly (when the country is prosperous and magazines are flourishing) about ninety pages of reading matter plus ninety pages of advertising. The stories and articles in a single number would fill about five hundred pages similar in size to the pages of this book. This amount is almost equivalent to two complete recent novels which I happen to have at hand. Thus for four cents a week the postman will deliver to you the equivalent of about two popular books a week, or about one hundred books a year. The following table of contents from one week's issue is typical of this weekly four cents' worth of contemporary literature:

SHORT STORIES

Joss—*Hugh Wiley* 8
What Are They Fighting For?—*Alice Duer Miller* 10
The Ravelin' Wolf—*Irvin S. Cobb* 12
Head and Shoulders—*F. Scott Fitzgerald* 16
Three Fundamental Laws of Business—*Victor Shawe* . . . 18
The Cedar Rapids Blues—*John Peter Toohey* 20
The Poor Fish—*Oscar Graeve* 30

SERIALS

Evered—*Ben Ames Williams* 3
The Drums of Jeopardy—*Harold MacGrath* 24
The Possibilist—*George Kibbe Turner* 26

ARTICLES

Siberian Impressions—*Princess Cantacuzène, Countess Spéransky, née Grant* 6
Dry Manhattans—*Bozeman Bulger* 14
How Many are Destitute in Europe?—*Alonzo Englebert Taylor* 15
Round Our Town—*Emerson Hough* 22
The Philippine Situation—*Gregorio Nieva* 40
The Hawken Rifle 65
The Wit Cracker Jay—*Enos A. Mills* 127

DEPARTMENTS

Editorial—*By the Editor* 28
Everybody's Business—*Floyd W. Parsons* 34
The Poet's Corner 70
Matters of Opinion 72
Out-of-Doors 94
Small-Town Stuff—*Robert Quillen* 109
Sense and Nonsense 181

Famous story-contributors fascinate even literary professors.—If you are familiar with contemporary writers you will recognize among these contributors some of the most skilled and generally pleasing, such as Irvin Cobb, Harold MacGrath, and Emerson Hough. While the "just for fun" story material is especially prominent, you will note also discussions of serious topics, such as "Siberian Impressions," "How Many are Destitute in Europe?" "The Philippine Situation." Moreover, we must not forget the additional ninety pages of advertising matter, in which the pictures are often especially fascinating to certain readers. Finally, lest you may feel that such reading is not very creditable, let me say that I have watched one of our most

literary university professors of English absolutely absorbed and fascinated in reading an issue of this magazine, and have heard that one of our most brilliant classical professors, who is a voracious reader, devours every day one novel such as those by Harold MacGrath.

An additional eight cents a week brings review of the world affairs.—For an additional ten cents a week you may purchase copies of one of our leading weekly reviews which summarizes the discussions of all types of contemporary problems. If you pay the annual subscription price of four dollars, your weekly cost is about eight cents. In prosperous times an issue of this magazine contains from eighty to one hundred pages and is about one half advertising matter. Thus for eight cents a week the postman will deliver to you full discussions of contemporary politics, foreign affairs, art, literature, religion, science, etc. A detailed picture of the contents of one issue of this magazine was given at the beginning of our chapter on understanding social life (pp. 175–176), where we used it to present a cross section of contemporary life and civilization.

Ten to twenty hours of high-grade reading matter for twelve cents.—These two opportunities for securing reading matter may be summarized as follows (if we omit the advertising):

90 large magazine pages of fiction etc.[1]	4 cents a week
40 smaller magazine pages of reviews	8 cents a week
Total	12 cents a week

[1] The fact that so much reading matter can be obtained for such a small sum is due to the high prices paid for advertising in the very popular periodicals. Thus, in the "Americanization of Edward Bok" (p. 421), it is stated that in October, 1919, the magazine that Bok edited sold 2,000,000 copies and carried $1,000,000 worth of advertisements. If we estimate that each copy sold for fifteen cents, we find that the whole issue sold for only $300,000, while the advertisements in it paid the publishers $1,000,000. This fact explains why popular magazines diminish greatly in size when hard times prevail and business firms curtail their advertising.

For this amount the postman will deliver to you weekly enough excellent fiction and serious reading matter to occupy an ordinary reader twenty hours, or a fairly fast reader about ten hours. In a home this material would, of course, be available not merely for one reader but for several.

Great metropolitan papers delivered for a few cents a week.—We still have left thirteen cents from the original twenty-five which we planned to invest in high-grade reading matter as a means of illustrating the opportunities for silent reading that prevail today. Before the World War this balance would have purchased in the larger cities a daily and a Sunday paper for a week. At the present writing it would not suffice for this purpose, but it would bring through the mails *either* a daily or a Sunday metropolitan paper. Unfortunately many of my readers who live remote from our largest cities do not realize what wonderful collections of reading matter are issued by the great metropolitan papers. The Sunday editions of these papers are complete magazines, while even the daily editions contain masterly discussions of events transpiring in all parts of the world.

Thus the American public enjoys rich opportunities for silent reading.—Thus by discussing merely periodical literature we have shown that for a few dollars a year every household that is reached by the United States mail may be supplied with enough excellent reading matter to engage the leisure time of most adult workers. Such periodical literature contains much of the best that is published—the stories being most fascinatingly told, and the serious articles often being written by well-qualified experts. We might go further and describe the excellent library facilities that exist in many communities, and other opportunities for securing material for reading, but we have probably already said enough to make clear the fact that the American public enjoys such rich opportunities for silent reading that every family that can afford to spend twenty-five cents a week may be well supplied. Having thus canvassed the *opportunities*, let us now turn to the *need* for skillful silent reading.

Social need for skillful silent reading. *Relation to broad educational aims.*—The social need for skillful silent reading may be demonstrated under all the broad, fundamental social aims of teaching. In the author's "General Methods of Teaching" these aims have been formulated as follows:

1. Good health
2. Harmless enjoyment of leisure time
3. Good will
4. Social service
   a. Business service
   b. Home service
   c. Civic service

1. *Scientific health articles combat quackery and superstition.*—The social need for skillful silent reading in order to improve health is illustrated in the daily press by the articles relative to health which are now a constant feature. For example, in the *Chicago Tribune* we find in Dr. Evans's excellent articles recent discussions of the following topics: the stages of a cold; the health of teeth; the amount of sleep needed at different ages; improvement in typhoid rates in cities. In the smaller cities the daily papers frequently contain syndicated health articles as well as discussions contributed by the United States Health Service and other health agencies. The contrast between these scientific health articles and the advertisements of fraudulent "patent" medicines is very striking. The need of training persons so that they can read easily and intelligently the scientific articles and discover the fallacies and falsehoods in many patent-medicine discussions illustrates the desirability of training pupils in active analytic, reflective reading in school.

2. *Enjoyment of reading enriches the harmless enjoyment of leisure.*—Attaining the second broad social aim—namely, harmless enjoyment of leisure time—is also greatly facilitated by skill in silent reading. Among educated Americans reading is probably the most common method of enjoying leisure, yet there are many adults and children who miss the joys so close

at hand merely because they cannot read well enough to grasp them. Hence one of the easiest ways of greatly increasing the enjoyment of leisure is to train all pupils in the elementary schools to be facile silent readers.

3. *Good will may be increased by broad-minded, unbiased reading.*—The third broad social aim—namely, good will—is greatly dependent upon a broad mutual understanding and sympathy, to which wide reading of many types contributes. The enormous influence of such reading, when ill-directed, is shown in the extremely vicious and narrow views of those who read on only one side of a controversy; for example, reading either a rabid Republican or a rabid Democratic paper. During a political campaign, if you read one partisan paper you may decide that a certain candidate is almost a god, whereas if you read a newspaper of the opposing party you might conclude he is the greatest of villains. To develop intelligent good will, pupils should be trained to read skillfully on both sides of a public controversy, to detect personal animus, to suspend judgment, to balance arguments, and finally to decide for the right. This is only one way in which skillful silent reading may contribute to the development of good will. In a later chapter, on moral ideals and habits, we shall note other ways in which reading contributes to the realization of this educational aim.

4. *Efficient social service is facilitated by skillful technical reading.*—Finally, it is easily shown that skill in silent reading contributes to the three forms of social service which constitute the fourth broad social aim of teaching. For each technical line of business—law, medicine, engineering, brokerage, farming, etc.—there is much technical reading to be done. Recent developments in scientific farming furnish striking examples, since the isolation of many farmers makes them especially dependent upon agricultural bulletins and magazines for progressive improvements in farm practice and marketing. The second type of social service—namely, that of the home—is also greatly aided by skillful silent reading of cookbooks and of magazines

on good housekeeping, in which suggestions abound for feeding the family, decorating the home, and caring for the health and education of the children. As for civic service, it has long been recognized that intelligent reading of public discussions is the best and most influential guide. Hence in recent revolutions in Europe one of the first acts of the revolutionists has been to seize all printing establishments and repress all newspapers except those favorable to their cause.

Social opportunities and needs for skillful silent reading concluded.—Thus we see that the enormously enriched opportunities for silent reading offered by American life parallel corresponding needs for such reading in order to secure good health, harmless enjoyment of leisure, good will, and social service. In a later section we shall show how progressive elementary schools endeavor to provide equally abundant opportunities for silent reading in order to give sufficient practice to develop the habits and skill in such reading which we have found to be so valuable a feature of contemporary American social life. Before examining the *opportunities* which a progressive school offers, however, we shall canvass the *needs of pupils* in school in acquiring skill in silent reading. Then, with the social needs and pupils' individual needs for silent reading both in mind, we can better understand the opportunities which a progressive school provides.

Section II. What a Pupil needs in Acquiring Skill in Silent Reading

1. **Intense interest in reading.** *Makes practice effective.*—One of the first needs of a pupil who is to acquire skill in silent reading is an *interest* in reading. Even in the less complex forms of skill, such as learning to spell or to play baseball or to knit, the presence of an intense interest in the activity has been found particularly helpful. In such a complex process as reading, in which many hours and years of practice are required to attain skill, little progress will be made by the pupil who must be con-

tinually driven to the task. If, on the contrary, reading appears to him as fascinating as playing a game, or doing something else that he greatly enjoys, he will practice it frequently with the alertness and energy that are so helpful in any learning process. In our chapter on beginning reading (pp. 72–124) we described a playful introduction to reading in the first grade through kindergarten games, nursery rimes, and fairy tales, which makes reading seem one of the most delightful of activities to children. In the first and second grades skillful teachers have many successful devices to maintain this interest. In the middle and upper grades similar devices must be provided.

Adventure, problem-solving, and other interests utilized.—The general lines along which these devices may be developed are suggested by the list of instinctive interests which we considered at length in the chapter on understanding social life (p. 216). For story-reading, appeal to the instinctive interest in adventure and romance will attract most children to read fairy tales and such books as "Tom Sawyer," "Treasure Island," etc. For the more studious types of reading, devices must be used to appeal to the instinctive interest in problem-solving, communication, manipulation, physical activity, collecting, imitative play, games, and emulation and to the desire for social approval. In our chapter on understanding social life we have already seen how historical reading may be stimulated by some of these interests, and in a later section of this chapter we shall report further examples.

2. **Experiences, ideas, and meanings needed for interpretation.**—A second need of the pupil who is to acquire skill in silent reading is a store of experiences, ideas, and meanings with which to interpret what he reads. I was especially impressed with this fact in connection with my son's reading of historical fiction and biography at the age of twelve (as described on pages 217–221). At the same age the most advanced reading which I could easily do included such books as Alger's "Ragged Dick" and Castleman's "Frank on the Gunboat." I did not attain ability

to read Dumas's "Three Musketeers" easily until I had entered high school and had had some instruction in European history. As for historical biography, I remember trying to read Irving's "Life of Washington," of which we had a copy at home. It was quite beyond me both in ideas and vocabulary. Yet at the same age of twelve my son was able to read the early volumes with ease, thanks to the excellent historical course which he had enjoyed in the elementary school and which had given him the necessary historical ideas for interpreting Irving's language.

3. **Vocabulary of ten thousand words automatically recognized.**—The third need of a pupil who is to be a skilled silent reader is a large reading vocabulary; that is, such familiarity with some ten thousand printed words that he recognizes each automatically at sight, without hesitation. In highly skilled silent reading the reader should be perfectly free to concentrate his attention upon the meanings that the phrases, sentences, and paragraphs present and should seldom have to hesitate to puzzle out a word. To attain this automatic familiarity with words calls for a very large amount of reading matter and reading practice. It is not enough that a word be deciphered and read once. Usually it must be met several times in order to make its recognition automatic. Hence progressive schools endeavor to provide an abundance of reading matter to facilitate such automatizing of a large reading vocabulary.

The ten thousand most common words.—A scientific basis for determining what words should be included in the pupil's automatic reading vocabulary was provided in 1921 by the publication of E. L. Thorndike's "Teacher's Word Book," which he describes as follows:

> The "Teacher's Word Book" is an alphabetical list of the 10,000 words which are found to occur most widely in a count of about 625,000 words from literature for children; about 3,000,000 words from the Bible and English classics; about 300,000 words from elementary-school textbooks; about 50,000 words from books about cooking, sewing, farming, the trades, and the like; about 90,000

words from the daily newspapers; and about 500,000 words from correspondence.... A measure of the range and frequency of each word's occurrence is given by the credit number following it. (12: iii)

It will probably not be long before such a standard *reading* vocabulary as Thorndike has listed will be made the basis of published systems for teaching this vocabulary, just as the *spelling* vocabulary of some three thousand common words has been made the basis of numerous recent spelling books.

Thus we have considered three needs of the pupil who is acquiring skill in silent reading: (1) an interest in reading; (2) a stock of experiences, ideas, and meanings with which to interpret what he reads; (3) a vocabulary of thousands of words which he recognizes automatically.

4. **Practice in both cursory and studious reading.**—The fourth need of a pupil who is to acquire skill in silent reading is abundant practice in the two principal types of silent reading; namely, (1) cursory, unreflective, nonstudious reading and (2) reflective, studious reading. We shall describe briefly the nature and value of each of these types as a preparation for a later discussion of special practice devices for each kind.

a. **Cursory, unreflective, nonstudious reading.** *Fiction.*—The nature of this type of reading may be easily illustrated by the mental processes involved in reading fiction. For example, imagine yourself reading Scott's "Abbot" at the point where the young hero, Roland, had caught a glimpse of his lady love, Catherine Seyton, on the streets of Edinburgh and pursued her until she entered a strange, ancient mansion. Boldly he opened the door and followed, but soon found himself in trouble.

A little recalled to sober thought by an appearance of serious danger, he was deliberating whether he should stand fast or retire, when Catherine Seyton reëntered from a side door, running toward him with as much speed as a few minutes since she had fled from him.

"Oh, what mischief brought you hither?" she said. "Fly—fly, or you are a dead man,—or stay—they come—flight is impossible—say you came to ask for Lord Seyton."

She sprang from him and disappeared through the door by which she had made her second appearance; and, at the same instant, a pair of large folding doors at the upper end of the gallery flew open with vehemence, and six or seven young gentlemen, richly dressed, pressed forward into the apartment, having, for the greater part, their swords drawn.

"Who is it," said one, "dare intrude on us in our own mansion?"

"Cut him to pieces," said another; "let him pay for this day's insolence and violence. . . ."

Enjoyment of rapid action, or of pictures or personalities.—In reading such material you may hasten along as fast as possible in order to enjoy the thrill of the action and ascertain the outcome of the hero's adventures. You may become impatient of all delay and skip descriptions that are not necessary to an understanding of the action; for example, while reading "The Abbot" near the point described above I impatiently skipped most of these words:

. . . a paved court, decorated with large formal vases of stone, in which yews, cypresses, and other evergreens vegetated in somber sullenness, and gave a corresponding degree of solemnity to the high and heavy building in front of which they were placed as ornaments, aspiring towards a square portion of the blue hemisphere, . . .

To be sure, another reader, with a special interest in medieval architecture, might enjoy reading the parts which I omitted. When I asked my son at the age of twelve what parts he had omitted he startled me by saying, "Oh, those long-drawn-out conversations between two lovers." Possibly when slightly older these same conversations may fascinate him.

Skillful, active detecting and selecting of interesting portions involved.—In such rapid, cursory, just-for-fun reading you don't stop, as a rule, to turn the matter over in your mind. For this reason we may call it nonreflective reading, to distinguish it from more studious, reflective types of reading to be described later. Such nonreflective reading, however, is not unthinking or merely passive. Instead, it involves the most active selection of

certain portions of the material or certain lines of thought, with conscious neglect of others. It requires considerable skill to be able to see at a glance what portions are needed for your present purpose and what portions you may neglect. For example, in the selections from Scott given above, by the time you read "a paved court, decorated," the word "decorated" gives a hint that you may overlook a considerable amount that follows, if you are interested merely in the action; but where it reads "a pair of large folding doors . . . flew open with vehemence," you take careful note of what is said.

Serious matter also cursorily read for enjoyment of flow of ideas.—This rapid, cursory, nonreflective, yet active, selective reading is perhaps the commonest type to be found in ordinary life. It is especially prominent in the reading of fiction and of the news of the day as reported in the daily papers. In the case of well-educated persons it is also very common in reading serious matter, such as history, biography, travel, civic discussions, etc., just for the enjoyment of the flow of ideas that the reading arouses. In such cases we must distinguish such serious reading from the more studious, reflective types to which we shall now turn our attention.

b. **Reflective, studious reading. (1) Detailed analysis of meanings.**—The first kind of studious, reflective reading that we shall consider may be illustrated by the reading of arithmetic problems. As an example notice your mental activity in trying to grasp the following problems preparatory to solving them:

Bordeaux mixture, for spraying, contains $1\frac{1}{4}$ per cent by weight of copper sulphate, $1\frac{1}{4}$ per cent of unslaked lime, the rest being water. How many pounds are there of each in a barrel containing 250 lb. of the mixture?

If steel rails weighing 120 lb. to the yard are used between New York and Chicago, a distance of 980 mi., how many tons will be required for a double-track road between these two cities?

The Bordeaux-mixture problem may puzzle you (if you have not had experience in spraying gardens or using chemicals)

merely through its strange terms, although the arithmetical features of it are easy to understand. On the other hand, in the steel-rail problem you will easily grasp the meaning of the individual terms, but in getting the full meaning of the problem, in order to solve it, you will probably glance back and forth over it several times, pick out certain features, work with them, then return for others, etc.

Textbooks call for much careful analysis of meanings.—This kind of reading we may call "detailed analysis of meanings." The need of training pupils to do it skillfully is emphasized by Thorndike in the following quotation from a description of his reading-scale for measuring ability to understand sentences:

> It will be profitable for any group of teachers to examine the textbooks used in Grade IV, marking passages that seem harder to read than Difficulty 5.25 [of the scale]; to examine textbooks used in Grade V, marking passages that seem harder than Difficulty 6; and so on. Such passages evidently need to be taught as *reading* before they are taught as arithmetic or geography. It will be still more instructive to test the pupils in advance with these passages in tests constructed after the pattern of the scale. The results will prove that for many pupils the task in arithmetic is not to understand the purely arithmetical problem and know the means for meeting it, but to read the description of the problem. Many failures to learn geography will be found due not to inability to use certain facts, nor to inability to remember certain facts for use, but to inability to get these facts from the paragraph presenting them. The pupils in question never had these facts at all. (**14**: 46)

Pupils need skill in analyzing meanings in higher studies and in practical documents.—As the pupil progresses into high school and college he will find more and more occasion for the careful analysis of meanings in reading his textbooks in mathematics, science, grammar, psychology, philosophy, religion, law, medicine, engineering, etc. When he gets into practical life he will have frequent need for such analysis in reading directions for practical operations, in studying contracts and other legal documents, in puzzling out the complications of insurance policies,

and in many other examples of practical technical reading. Thus we find the first type of reflective, studious reading—namely, detailed analysis of meanings—to be an important need of the pupil both in school and in practical life.

(2) **Grasping and organizing main points of a chapter or an article.**—Another type of reflective, studious silent reading may be illustrated by the studying which you would do in case your instructor were in the habit of giving in his tests such directions as the following: "Give a concise, organized summary of the discussion of the pupil's needs in silent reading." In studying for such questions you would try to grasp the points in an assignment, outline these as main points and subpoints, and remember them at least until the test should be over. In my own instruction I have recently tended to emphasize such test questions in order to train the students in doing this type of reading. Moreover, in writing this text, a number of devices have been used, such as paragraph headings, numbered series of points, division of chapters into sections, etc., in an effort to help the reader to grasp and organize in his mind the main points of a chapter. Unless a reader purposely tries to do this he may become lost in the details, or remember merely some interesting examples instead of the general points which they illustrate.

Examples of selecting points in an article on Hoover.—This selecting and organizing of the principal points of an article or chapter is particularly important in reading serious articles in magazines for technical or civic purposes. For example, shortly after the World War my wife and I read in a magazine a sketch of the life of Herbert Hoover. From the wealth of detail in the article these points seemed to stand out:

1. Hoover was a poor boy, and through his own genius and efforts he attained eminence.
2. He is an efficiency expert.
3. He is a wizard as an organizer.
4. He sacrificed personal wealth in order to serve in large social enterprises.

5. Through practical experience in mining-engineering and the food administration he knows intimately the Orient, Europe, and almost every corner of the world.

6. Hence he is familiar with international relations.

Activities involved in selecting and organizing points.—In picking out such points as these the reader may pursue some of the following activities:

1. With definite intention he may *watch* for main points as he reads.

2. He may *underline* them, or mark them in some other way.

3. He may *review* the article to "spot" them or to refresh them in mind.

4. He may *recall* them mentally after reading the article.

5. He may *write an outline* of them, either while perusing the article or from memory.

6. He may *talk them over* with someone.

Practice exercises in Section III for selecting and organizing main points.—In a later section of the chapter we shall describe some sample lessons in which special practice was given in this second type of reflective, studious reading; namely, the selecting and organizing of the main points of a chapter or article.

(3) **Reading to remember main ideas.**—Closely related to this selective, organizing reading is studious reading with the definite purpose and intention of remembering the principal ideas. In much of the cursory, nonreflective reading of fiction and other matter just for fun, we don't care whether we remember the contents or not—our chief purpose is merely to enjoy the train of ideas that the reading involves. When we are doing reflective, studious reading, however, we often desire to remember the principal points for future use. Our reading of the Hoover article described above is an example in point. At an earlier date, when Hoover was feeding Belgium, I had read an account of his life, but had given him only casual attention as one of the many figures in the World War. Later, however, the possibility of his being a candidate for public office led me to read with the definite intention of remembering the main facts. This

purpose is subserved by the same activities as we described above for selecting and organizing the main points. To these we would add the need for reviewing the article *after a little time had elapsed* for its main points, as well as restudying the written outline of these.

(4) **Critical evaluation of statements.** *Reading of the League of Nations.*—We shall now turn to a fourth type of reflective reading, in which careful, critical evaluation of the printed statements is carried on, in order to determine if they are true or valid, or if they are inconsistent, or if the policy they express is sound and profitable, etc. In order to illustrate this type of reading imagine yourself a member of the United States Senate in 1920, during the debate on the ratification of the Versailles Peace Treaty. You are trying to decide whether to vote for or against the famous Article X in the Covenant of the League of Nations, which reads as follows:

> The members of the league undertake to respect and preserve as against external aggression the territorial integrity and existing political independence of all members of the league. In case of any such aggression or in case of any threat or danger of such aggression, the council shall advise upon the means by which this obligation shall be fulfilled.

In trying to decide which way to vote you would not only try to puzzle out the full force and meaning of certain crucial words in these two sentences, such as the words "advise" and "obligation," but you would also evaluate carefully the desirability of the proposed arrangement. In doing this you would have to read the covenant over and over to get the relation of this paragraph to others. Moreover, you would have to recall how an apparently isolated attack by Austria on Serbia embroiled the whole world in a great war, how similar aggressions in the future may have similar results, how such aggressions can be avoided, etc. In other words, you would have to do the highest type of reflective thinking while evaluating this important historical document.

Critical reading on civic issues, investments, vacation plans, etc.—However, you do not have to attain high office in order to do such critical political thinking, since all American men and women are called upon to do it in reading about civic issues, especially during political campaigns. These issues may vary from local matters (such as the desirability of a bond issue for good roads) to large national issues (such as national prohibition or participation of the United States in foreign wars). In other practical affairs the same critical evaluating reading is frequently demanded; for example, in reading alluring advertisements of real-estate bargains or of oil and mining stocks, in studying catalogues and courses of study of higher schools while planning an education, in comparing descriptions of resorts and routes of travel when arranging to spend a vacation, in studying a contract preparatory to signing it, etc.

Mental processes in critical reading.—The mental activity in such skilled critical reading may include such operations as the following:

1. Recalling related facts and evidence with which to test the truth or value of the printed statements.

2. Making cross comparisons within the material to ascertain inconsistencies, contradictions, supporting arguments, etc.

3. Comparing with other documents bearing on the same question.

In Section III of this chapter we shall give examples of lessons in which practice in these activities is provided.

(5) **Bibliographical research.** *Consulting books and periodicals.*—As the final type of practice in studious, reflective reading we may note the need for training in consulting books and periodicals while searching for discussions of particular topics. This practice may consist in using any of the following sources: (1) the table of contents and index of a single book or periodical, (2) collections of several volumes, including encyclopedias and other books of reference, (3) the catalogues of libraries, (4) the cumulative indexes to all periodicals, (5) the open

shelves of libraries. In a poorly equipped elementary school and community, practice may be possible in only the first of these; but in a well-equipped school and community, pupils may receive considerable practice in the consultation of whole libraries before they have finished the elementary school.

Conclusion and review of Section II, on pupils' needs.—This concludes our discussion of the topic of Section II of the chapter; namely, what a pupil needs in acquiring skill in silent reading. We have indicated that his needs include the following:

1. An intense interest in reading.
2. A stock of experiences, ideas, and meanings for interpreting what he reads.
3. A vocabulary of ten thousand words which he recognizes automatically.
4. Practice in both
   a. Cursory, unreflective reading and
   b. Reflective, studious reading, including
      (1) Detailed analysis of meanings.
      (2) Grasping and organizing main points.
      (3) Reading to remember main ideas.
      (4) Critical evaluation of statements.
      (5) Bibliographical research.

In Section III we shall describe actual lessons and devices which illustrate the practices of progressive schools in organizing the training of pupils in silent reading so as to meet these needs.

Section III. Practice Exercises in Silent Reading

Details of technique illustrated.—In order to give the beginning teacher a concrete idea of the actual classroom procedure in conducting silent-reading lessons, we shall first describe in detail a second-grade lesson which exhibits pupils in the very early stages of learning to read silently, and then describe some seventh-grade lessons that illustrate the technique that may be

used in the higher grades. These descriptions will be followed by a systematic account of devices to meet each of the pupil's needs listed in the preceding section of the chapter.

A. *Sample Lessons from Second and Seventh Grades*

Second-grade lesson. *Compare with earlier silent-reading lesson and silent-reading tests.*—The second-grade lesson was taught by Miss Laura Lucas in The University of Chicago Elementary School. We may prepare ourselves to appreciate her technique by recalling two of our earlier discussions of the teaching of reading. The first of these is the description (on pages 120–123) of one of Miss Lucas's lessons in which the second-grade pupils, in the fall, read silently the story of a crocodile who tried to catch a monkey. This lesson illustrated the general spirit of Miss Lucas's teaching, in addition to giving us a picture of a different type of practice in silent reading from that which we shall describe below. The other discussion, which we might review to advantage, concerns the use of silent-reading tests (as described on pages 133–135) to determine how well pupils can grasp and remember some of the main points of a story they have just read. The lesson to be described was intended to test the pupils' abilities in this line and to give them practice in it.

Pupils from middle third of the class: average abilities.—The group of second-grade children to whom the lesson was taught represented in ability the middle third of the class. The top third included the fast, skilled readers who needed no special help in reading; the lowest third included children who lacked phonetic training or ability and needed much special assistance; while the middle group, whose lesson I observed, needed some help but had considerable skill and a fair reading vocabulary.

Opening directions: pupils to read carefully, then answer questions.—At the beginning of the lesson this group assembled in their little chairs at the front of the room. After some prelim-

inary remarks Miss Lucas said: "Today we are going to read a story which I think you have never seen before. We shall read it to ourselves, silently. I want you to see not how *quickly* you can read it but how *well* you can do it, so that you can write the answers to all the questions that I am going to give you. Be sure to answer each question in a complete sentence and be careful to watch your capitals and periods."

Difficult phrases and words studied on the board.—Miss Lucas then went on: "In order that you may read each question easily, and not have to ask me for help, I am going to write on the board some phrases and words which you will meet in the story. The name of the story is this [writing]: 'Talkative Mr. Shellback.'" By means of their phonetic abilities the children readily pronounced this new title. "You may study these phrases and words as I put them on the board, and then I shall ask different ones to read them."

The children watched attentively as Miss Lucas wrote the following:

among the lilies	opened his mouth
clever remark	lifeless
talkative turtle	moment
traveling through the air	jealous

Phonetics and meanings.—Miss Lucas then asked, "Do you see any phrase or word that gives you trouble?" Individual pupils stepped to the board and pointed to several. The pronunciation of each one was worked out phonetically. Attention was called to the meaning of some of the phrases by such questions from the teacher as, "What does 'clever remarks' mean?" A pupil replied, "Like they were smart." "What does this phrase mean?" continued Miss Lucas as she pointed to different ones. "Let's name them all together," she said, in concluding this step in the lesson.

Silent reading timed and answers to questions written.—"Now," said the teacher, "we shall read the story silently and

then answer the questions." As she gave each pupil a book, she added: "Open your books to page 88, then hold your finger in the place and close the book. Remember, you are going to read the story through carefully, then hold up your hand as soon as you have finished so that I can time you. Then read each question through carefully and write the answer. If you don't understand a question, ask me."

The pupils then returned to their desks. Miss Lucas said: "All ready? You may start." She noted the time on her wrist watch and made a memorandum of it on a piece of paper. The children opened their books and began to read silently.

Miss Lucas then removed a large sheet of manila paper which hid twelve questions that she had written on the blackboard.

The first five of these read as follows:

1. Who was Mr. Shellback?
2. Where did he live?
3. Who were his friends?
4. Where were they going?
5. What did the turtle want to do?

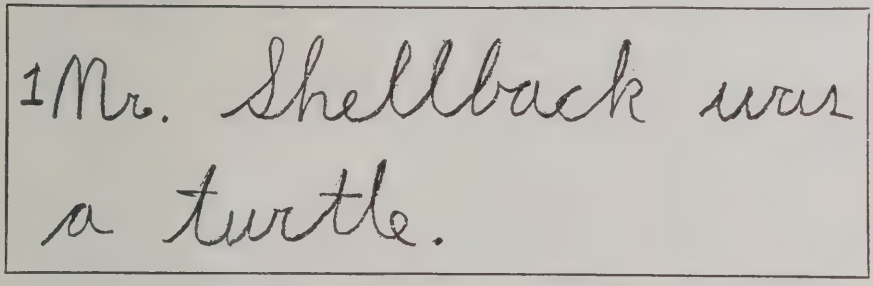
Much vocalization.—Meanwhile the children were absorbed in reading. All except two or three were moving their lips and some were vocalizing quite audibly.

Timing and helping each child.—As each pupil finished his reading he raised his hand and Miss Lucas wrote down his time. The child then took out pencil and paper and began to write the answers to the questions. If he needed help on spelling he raised his hand and named the word. Miss Lucas then wrote it on the board; for example, "house," "worm," "ducks," "country."

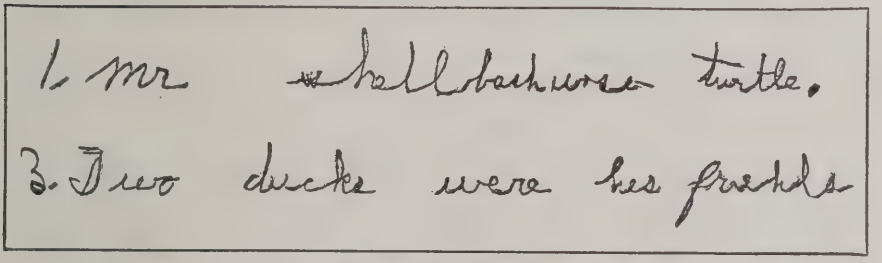
Everybody worked rapidly and quietly. Miss Lucas was alert to note each pupil's needs, as she moved around the room giving individuals occasional suggestions in a very low tone. Only twice did I notice a pupil open his book to refresh his memory in preparation for answering a question, although the children understood that they might do this whenever necessary.

Supplementary reading.—When a pupil finished writing he took his paper to the teacher for her approval. He then opened his book and proceeded to read another story.

Close of period.—At the end of the period, when the remaining papers were handed in, Miss Lucas said, "I shall correct your papers later, and then we can see how well you have done."[1]



SAMPLE ANSWER FROM A PUPIL WHO WAS SKILLED IN BOTH SILENT READING AND HANDWRITING



SAMPLE FROM A GOOD READER WITH A FINE MIND, BUT POOR IN MOTOR CONTROL

Comparative rates. Fastest equals twice the average and three times the slowest.—The next day I secured from Miss Lucas the rates of reading which she had calculated from the scores of the children. In spite of the fact that these pupils con-

[1] Samples from the papers of two of the children who finished first are shown above. These papers exhibit interesting contrasts in motor skill as represented by the handwriting. Miss Lucas told me that the poorly written paper was from a little girl who had a very fine mind, but who experienced so much difficulty in the handwork classes that she scarcely succeeded in constructing anything.

stituted a comparatively homogeneous group from the middle of the class, the fastest pupil had read 155 words a minute while the slowest had read only 50. The most frequent score was 77.

Diagnosing needs.—From these scores as well as from the quality records of the pupils, Miss Lucas was able to diagnose each pupil's peculiar needs, as well as the general needs of the group as compared with second-grade classes in general.

How the lesson meets pupil's needs in silent reading.—If we will recall our general canvass of a pupil's needs in acquiring skill in silent reading (as summarized on page 351), we may note that this lesson meets these in the following manner:

1. The pupil's *interest* in silent reading was stimulated by the fascinating story material and by the game element contained in discovering the answers to questions and in comparing the rates of reading.

2. His reading *vocabulary* was increased by the specific practice on new and difficult phrases and words such as "clever remarks" and "jealous."

3. He received practice in *careful silent reading* of material with the intention of *remembering* its *main ideas.*

Variety in practice secured by several devices.—Other types of silent-reading practice which Miss Lucas used in other lessons with this group include the following: (1) rapid silent reading of a story preparatory to telling it (as described on page 121); (2) *oral* answers to questions on the story, instead of written ones; (3) varying the questions so that they can be answered by "yes" or "no" (this readily creates an interesting game for the pupils); (4) re-reading a familiar story from a new point of view which is determined by a few broad questions presented before the reading; (5) presenting questions on a new story *before* it is read; (6) drill games in flashing phrases for rapid recognition; (7) individual remedial work with pupils who experience special difficulty (as described on page 139).

Contrast more technical lessons from an upper grade.—With these impressions of silent-reading lessons on a very elementary

level, we may now contrast some lessons which are chosen from a class that is near the upper end of an elementary school, and which illustrate, consequently, much more technical training in meeting the needs of pupils who are acquiring skill in silent reading.

Sample seventh-grade lessons. *Training in reading material from community life.*—The lessons which we shall describe are from a seventh-grade class in which the study of community life was correlated with the study of English. The content of the course consisted of civic material, and the methods used included special attention to training in reading and in oral and written expression. The lessons were taught by Miss Edith Shepherd, departmental teacher of English in The University of Chicago Junior High School.

Three types of reading matter: text, supplementary, and recreational.—The topic which was being studied was "The school." The material read by the pupils included three distinct types; namely, (1) a *textbook,* (2) *supplementary* reading closely related to the text, and (3) *recreational* reading of stories of school life. The *textbook* took up such subtopics as "How the American school developed," "The money value of an education," "How to get the most out of school"; the *supplementary* reading included references to such books as "Child Life in Colonial Days," "Indian Boyhood," etc.; the *recreational* reading included such stories as "Tom Brown's School-Days," "The Hoosier Schoolmaster," etc.

Three devices illustrated: (1) *arousing interest,* (2) *teaching rules of practice,* (3) *finding "signpost" paragraph.*—Miss Shepherd was engaged, in coöperation with other members of the faculty, in experimenting to determine the best devices to use in improving pupils in various kinds of silent reading. We shall present her description of two of her lessons which illustrate particularly the three following points: (1) arousing the pupils' interest in improving their reading, (2) making them aware of the nature of effective practice, and (3) training them in rapidly

grasping the central thoughts or main points in chapters, sections, or paragraphs. Miss Shepherd's account will give a vivid, concrete notion of her method of conducting the class work. She wrote as follows:

Outstanding lessons.—A few lessons worked out experimentally with these pupils seem to me especially suggestive. Not only do they remain outstanding in my mind, but they were significant in the reading experience of the children, as evidenced by their frequent references to them and clear memory of them. One of these lessons was the second lesson of our experimental series. In it the children led the way in motivating their whole reading problem in a manner quite unforeseen by either teacher or pupils at the beginning of the lesson.

Arousing curiosity about pupils' rates of reading.—During the first lesson the curiosity of the children about their speed in silent reading was aroused by such questions as, "Have you ever had a silent-reading test?" "Do you know how fast you read or whether you read as fast as you ought to in your grade?" "Would you like to know?" Of course the last answer was affirmative, and an informal timed test for speed and comprehension was given on the spot. At the close of the test individual scores (number of words read per minute) were placed on the board arranged in order, beginning with the highest. The class was amazed to see that the scores ranged from 405 to 141 words per minute. They immediately wanted to know how fast their reading should be, but discussion of this question had to be postponed until the next lesson. They were dismissed with the promise that their question would be answered the following day.

Discovering how to practice most advantageously.—The class came eagerly to English the next day, the question again on their lips, "How fast ought we to read?" I told them the standard rate for their grade—280 words per minute ("Richmond Course of Study in English," p. 34)—and the median for their own class. One of those who fell below the median asked me to give him another test that day. Protests were at once forthcoming from three:

Pupil III. No, we ought to practice awhile first.

Pupil I. I think we ought to discuss why we are slow and how we can speed up.

Pupil VIII. There's no use talking about how—just read. All we need is practice.

At this point I asked, "Is that true of games—that you need just to practice, no matter how?" A negative answer from Pupil VIII brought the question "Why not?"—to which he answered, "You have to practice the right way to get results." To this the class agreed. "What do you mean by the right way?" I asked. The class discussed this question for several minutes in relation to games, no reference being made to reading. When no more suggestions were forthcoming from the class, I suggested that we sum up the points that had been brought out in our discussion. The summary which follows is given in the wording suggested by the class, even to the high-sounding title. I have inclosed in parentheses the concrete cases on which they based their generalizations.

ADVANTAGEOUS WAYS OF PRACTICE

1. *Practice something a little hard for you.* (Don't always practice batting with an easy pitcher.)[1]

2. *Practice according to the rules of the game.* (Don't hold the ball in practice if it is against the rules to hold it in the game.)

3. *Practice with your mind alert.* (Be ready for your opponent.)

4. *Practice a variety of exercises.* (In basketball don't practice throwing baskets all the time, but practice also passing—long pass, dribbling, etc.)

After these rules had been formulated I asked, "Do you think these principles of right practice are true only of games, or would they hold true in general?" The class was of the opinion that they would be true in general. "In reading?" I asked. "Yes," came the answer, "if we knew the rules." Here was my opportunity. Each of the principles I planned to teach was one of the rules; I had only to present it as such and show why it was effective in in-

[1] This conclusion of the pupils needs rather careful interpretation. For example, in the case of remedial work for very poor readers it is often necessary to go back to the easiest first steps in reading and to develop the learner's skill by very easy, graded steps. The example of Grace, described on page 139, is an illustration. Some skilled observers have concluded that when special practice in silent reading is introduced for poor readers, it is necessary to begin with material from schoolbooks at least two grades below that to which the pupils belong. Compare the cases of the boys who "struck out" all the time in baseball (as described on page 44).

creasing speed, to assure its ready acceptance. I shall illustrate how this was done by describing the lesson which introduced the pupils to the practice of discovering the "signpost" paragraph in a chapter, or section of a chapter.

Introducing the "signpost" paragraph.—The paragraph that initiated this lesson is from H. C. Hill's textbook on "Community Life and Civic Problems." It follows a discussion of two questions; namely, What should modern education be? What are the needs of today? The paragraph reads as follows:

> There are many different answers to [these] questions. . . . There are [some] people who say that the chief purpose of education should be to prepare boys and girls to support themselves; others insist that culture should be the chief goal; and a large number declare that education should be primarily for the promotion of social efficiency.

I recalled to the children the facts we had learned in a previous lesson,—that the Spartans, the Indians, and the Puritans had chosen a kind of education for their youth which would prepare them for their later life, and that they had succeeded largely because they were united in opinion. I here asked them to read the first two paragraphs of the section and see if in the author's judgment we are united in our opinion today. They found, of course, that there are at least three different opinions. After these had been stated I asked them what they expected the author to do in the rest of the section. They answered, "He will probably tell about each of these aims." I then compared the purpose of this paragraph to that of a signpost pointing the way of our journey with the author through his ideas. Next I pointed out that following the direction on a signpost brings the traveler to some destination, and asked what was probably the destination we would reach if we followed the author's signpost. When I pointed out that the destination of a *discussion* is generally a *conclusion*, or a *decision*, the class saw that in this case it would be a decision as to which is the best aim of education. At this point I said: "I'll give you two minutes to find out which the author thinks is best. Where will you look?" "In the first and last sentences of the paragraphs," they answered. Inside of the two minutes they had discovered his preference for the third aim. The next step was to see why, and what were the faults of the other two aims. They pointed out the sentences which told, and found that social efficiency included both self-support and culture, and training

in citizenship besides. With these facts in mind the class was next asked to represent this signpost paragraph on the board. After a little thought they decided on a signpost with three arms, all pointing along the same road, the first arm bearing the legend "Self-support, 3 miles"; the second, "Culture, 5 miles"; the third, "Social Efficiency, 10 miles." The distance, of course, indicates both the order of the three topics in the chapter and the fact that the third is larger than the other two.

The striking points of the lesson were (1) the discovery by the pupils that they need read no further than the second paragraph to know the main points of the discussion; (2) the realization that they could find quickly the conclusion drawn by the author, as the destination of the thought; and (3) the diagrammatic representation of these facts by means of the signposts.

Grouping pupils according to reading-ability, and differentiating instruction.—With these concrete lessons in mind to typify the general spirit of Miss Shepherd's class work, we may note with profit certain more general features of her experiment; namely, (1) grouping pupils of the class according to their ability in silent reading and (2) differentiating the practice exercises for the groups.

Superior, mediocre, and poor groups based on tests.—After giving one of the standard scientific reading tests to the pupils, the results were used to divide the class into groups of superior, mediocre, and poor readers.

Types of poor readers.—Miss Shepherd's characterizations of certain of the poor readers will help us to realize some of the special problems involved in overcoming the special deficiencies of such readers. The following are typical cases and reveal striking contrasts in pupils' needs:

Lazy, hazy, purposeless readers.—Pupils IX and XI were habitually lazy thinkers. They never attacked a piece of reading purposefully or with vigor; never gained more than a few hazy ideas from a ten-minute reading assignment, and were satisfied with that. Pupil XI had a limited reading vocabulary, and no initiative in attacking new words or in getting meaning from the context.

Conscientious, intelligent, plodding, word-by-word reader.—Pupil X was of a different type: all his reactions, physical and mental, were slow, but positive and intelligent. His reading vocabulary was poor, and his pertinacious habit of never leaving a word until he had grasped its meaning and pronounced it slowed up his silent reading and showed a distorted sense of values. He was a thorough plodder who had to learn not to be so thorough about details as to miss the main idea.

Timid, nervous, uncertain reader.—Pupil XII was nervous and very timid, and did not work well under pressure. He felt his lack of reading skill, and distrusted his grasp of material he had read. He needed more than anything else to have some standard by which to measure his own accomplishment, that he might know, after he had done a piece of reading, whether he had done it successfully.

Docile, undiscriminating memorizer.—Pupil XIV was a girl of no great ability, but was easily stimulated to effort and very teachable. She would read rapidly unless expected to reproduce, or answer questions; then she would go painstakingly over the material until she had undiscriminatingly memorized it. But she willingly adopted new methods and faithfully used them. I attribute most of her progress to docility in following directions.

Lack of standards and of sense of relative values.—For one reason or another all these pupils had failed to learn to do effective silent reading. One difficulty they had in common, and I believe in common with most poor readers—none of them had any standard for judging the effectiveness of his reading nor any clear sense of relative values. Pupils IX, XI, XIII, and XIV were as well satisfied to remember a few striking details as to have mastered the central idea of a selection, and the four who had difficulties with words would spend an undue amount of time on a new or difficult word whether it was vital to an understanding of the content or not.

Practice differentiated for superior, mediocre, and poor readers.—The manner in which Miss Shepherd endeavored to overcome these special defects of poor readers and at the same time provide the special practice needed by mediocre and superior readers is suggested in the following description which she wrote of a series of six lessons that were intended to give the pupils special practice in selecting the central ideas, or main

points, in their reading. This was one of the principles or rules of effective reading which she wanted the pupils clearly to understand and skillfully to apply. In her description the superior, mediocre, and slow groups are designated by the letters A, B, and C respectively. Her account reads as follows:

Six practice lessons in finding central ideas.—Perhaps the relation of principles of effective reading, text content, and supplementary assignments may be made clear by a detailed description of a series of lessons given in the second semester. These six lessons were consecutive lessons in the textbook and in application of the reading principle, but did not occur on consecutive days. Lessons one and two were given one week, lessons three and four the following week, and lessons five and six the third week. The intervening days were occupied with composition and other phases of English work.

Sections of the text.—The topic was "The School," the third chapter in Hill's "Community Life and Civic Problems." The textbook, which was then in experimental mimeographed form, divided the chapter into six sections, as follows:

I. How we Learn (about eight pages of ordinary text).
II. How the American School Developed (4 pages).
III. How the Public Schools are Controlled and Supported (6 pages).
IV. What Education should be (6 pages).
V. The Money Value of an Education (4 pages).
VI. How to get the Most out of School (7 pages).

The six lesson periods were spent as follows:

First day: Presentation to the whole class of the principle of finding central ideas. Application and practice in finding central ideas in Section I of the text.

Second day: For the first thirty minutes the C group reviewed the presentation given the day before and reviewed the application to Section I of the text. The B group read Section II, and the A group Sections II and III, and both prepared to report to the C group the important facts of these sections. During the last twenty minutes the A and B groups reported to the class, which asked questions and discussed points.

Third day: For the first thirty minutes the C group read Section II of the text, marking in the margin sentences that state central ideas and finding the points that the B group should cover in the quiz

which they were making. The B group was assigned the task of making a quiz for the class on this section. Their questions were to bring out important points and required only brief answers. The A group could do general library reading as soon as they felt prepared for the quiz. The last twenty minutes were devoted to writing the quiz and discussing the answers.

Fourth day: All the groups read Section IV silently, the C group marking central ideas. The teacher passed about among the C group observing sentences marked, helping those who were making mistakes, answering puzzling questions, and, in general, giving individual instruction to those who needed it. The A group, when they finished reading, were instructed to meet in the rear of the room, decide upon the main topics and subtopics of the section, and delegate one of their number to put the outline on the board to guide the class discussion. The B group were allowed to do library reading when prepared to discuss the text assignment. When all the groups were ready the entire class took part in the discussion based on the outline.

Fifth day: All the groups read Section V silently, the C group marking central ideas and comparing points with the author's summary in the last paragraph of the section. The A and B groups, in addition, prepared to discuss certain problems and questions from the list at the end of the chapter; for example, "Was Lincoln an educated man? Give reasons for your answer." "What social dangers in the home are corrected by the school?" The last part of the period was spent in discussing the section and the assigned questions.

Sixth day: All read Section VI, the first four pages—the A and B groups independently, the C group under supervision. The B group read also the last four pages and prepared to tell the main facts to the rest of the class. The A group prepared to read aloud to the class some poem or incident related to the topic; as, for example, "In School Days," by Whittier, or a passage from "Hiawatha's Childhood," by Longfellow. These may have been chosen by the children or assigned by the teacher. This completed the series of six lessons in finding central ideas.

Additional supplementary activities for capable groups.—Other supplementary activities for the A and B groups which I have used are the following: (1) Summarizing for class discussion; for example, a summary of likenesses and differences of a primitive and a

frontier community, put on the board by four members of the A group, formed an excellent basis for discussion when the C group had finished reading. (2) Preparation of a debate on a related question; for example, "*Resolved*, That the average home is better today than the average home one hundred years ago." (3) Preparation of a dramatization of a story or poem related to the topic; for example, "A Knight's Toast to his Mother," by Scott. Other suitable activities suggest themselves in the course of the work.

Much practice needed on each principle. Variety needed for interest.—Much practice is necessary to make each of the principles function habitually in the reading of pupils in the C group. Two or three lessons are not enough. One boy, Pupil X, finally formed the habit of looking for and marking the sentences which state the central ideas, after perhaps twenty lessons in which he had used the principle. So much practice is likely to become tedious unless various devices are used to arouse interest. A few of those I have found most successful are the following: (1) Marking central ideas as the selection is given a rapid silent reading; then comparing results with those of other members of the group. (2) Making an outline with central ideas marked by Roman numerals. (3) Guessing from the title what the central ideas will be and verifying or correcting by reading; for example, from the title "Dangers to the Family" the class guessed that the central ideas would be statements of different dangers, and guessed what several of them were. Their reading then verified, supplemented, and corrected these guesses. (4) Marking sentences in first reading, then comparing with points of the author's summary.

Reënforced by correlating with principles of composition.—In order to reënforce these principles it is helpful to emphasize them in the composition work at the time they are taught with reading. In connection with finding central ideas I taught the use of the topic sentence, the "signpost" paragraph, and the summarizing paragraph. When teaching how central ideas are supported I taught the methods of paragraph development in the composition work, and the use of subtopics in an outline. The children see that these rhetorical requirements are not mere whims of the teacher but devices useful for the reader or listener, and they enjoy using them in their themes and talks. After a well-organized talk has been given by one of the group, they enjoy trying to reproduce the speaker's outline or to

recall his topic sentences or his "signpost" paragraph. So, through frequent use, the principles are kept in mind. What is more, there is no need of laying aside the principle that has been learned, in order to take up a new one. On the contrary, each forms a basis for the addition of the succeeding one. A child may first learn to read with a question in mind, then he may learn to look for the key sentences in the reading which answer his question, then for the details which build these ideas up.

Results. Notable improvement by poor readers.—In my judgment the reading power of the weaker pupils was markedly improved by their practice. After the latter they attacked a reading assignment with a spirit of concentration quite lacking early in the year, and possessed a considerable ability in selecting essential points of a passage.

Instead of a few hazy ideas, Pupil IX generally had developed an assured grasp of the important points of materials he had read. In fact, in a recent assignment he organized his outside reading for three days so well that he was able to assign topics for reports to four members of the B group.

Pupil XIV no longer resorted to memorizing assignments and had quite lost the air of strain and uncertainty she wore at first.

Pupil XII had lost much of his timidity in discussing his reading. When alone with the teacher and the class he showed increasing confidence.

Pupil X was undoubtedly the slowest pupil in the class, though not the least intelligent; yet following this special training he went through a three-page selection after he had had a chance to read it silently once, and told the central ideas without an error and without hesitation.

Pupils XI and XIII, in my judgment, gained least in the course. They still lacked a sense of relative values, and their ideas of a passage read were apt to be somewhat hazy. Possibly this lack of improvement was due partly to lack of general mental ability, since the Binet-Simon Intelligence Test showed that with one exception these pupils ranked lower in intelligence than any other in the group.

Second-grade and seventh-grade lessons illustrate a developing technique.—The sample lessons described on pages 352–366 exemplify a technique in teaching silent reading

that has been invented largely since 1915, when the first scientific tests of ability in silent reading were popularized. Before this period there had been occasional emphasis upon the need of such training, but little systematic effort to analyze the elements of skill in silent reading and to invent systematic devices to develop each type of skill. Eventually we shall have printed manuals of detailed practices and devices to be followed in each grade, similar to the excellent detailed manuals for teaching first-grade reading which have been on the market for some years and to which we have referred on page 124. Pending the publication of these manuals, and the experimental testing of their devices, the best we can do in a chapter on silent reading is to give a few illustrations of the lines along which the practice exercises for silent reading have been developing. We have done this in a way in the lessons described above. We shall now endeavor to give a more systematic turn to our discussion by reviewing the analysis of a pupil's needs in silent reading as described and numbered in Section II of the chapter and by giving a few fundamental examples of how each of these needs has been met.

B. *Systematic Description of Devices*

1. **Developing interest.**—As indicated on page 340, one of the first tasks in giving practice in silent reading is to arouse the pupil's interest. In Miss Lucas's second-grade lesson we found this practice illustrated in the interest aroused by the fascinating story content and by the game element in getting the answers to questions and comparing reading rates (as described on page 354). In Miss Shepherd's seventh-grade lessons we found similar curiosity about the rates of reading, plus an eager interest in devising rules to guide the pupils' practice for improving their reading. Other examples of arousing the pupils' interest in reading, which I have secured from experienced teachers in my summer classes, include the following:

Timing "Treasure Island."—A seventh-grade teacher[1] told of beginning in class the reading of "Treasure Island" and then asking the class to finish it during the several days that remained before the beginning of the next week. "Gee!" said one boy—"read the whole book by Monday!" The teacher suggested that most of the class would find the story so fascinating that they wouldn't want to lay it down; but, seeing that some were still displeased, said: "Just see how long it really does take you to read it. Keep a record of the time you *actually* read; that is, don't count the time when your mother calls you away to do things, etc." The assignment included other points which need not concern us here. When Monday's reading lesson came it developed that most of the pupils had finished the book. These included the boy who had thought in advance that it would be a hardship. It had taken him about thirteen hours, however, which proved that he was a slow reader, since several of the pupils had completed it in seven hours. The teacher then brought to his attention other books which might interest him.

Challenging the pupils' ability to read.—A device that a fifth-grade teacher[2] used was described by her in these words:

> At the beginning of some interesting topic I say to the children, "There would be lots of fun in this if you only knew how to read." There are usually vigorous protests and expressions of surprise that I should question their reading ability, so I say, "All right, read page 59 (something easy and interesting) and tell me what it says." After a while a hand will go up, and I allow the child to tell us what it says. Others who have read more intensively will supplement what he says, and I finally admit that they know how to read *that.*
>
> In talking about it, however, while some will challenge me to find something they cannot read, others will admit there are many things they don't understand. Some will say they often read a paragraph over and over and know every word but can't understand the paragraph. Some will say they can read it if they even "sorta" know

[1] Adelbert S. Anderson. [2] Mary Roberts Scott.

the words, while those who are weakest will probably not talk at all. This discussion initiates interest in improving the pupils' ability to read, but it is necessary constantly to invent new devices to keep their interest alive, especially in the case of poor readers.

"Hopeless" pupils interested through their hobbies.—Concerning her devices for interesting "hopeless" pupils the same teacher wrote as follows:

There are about ten out of forty children that don't like to read anything, and there are generally three or four out of the ten that seem hopeless in reading. Sometimes we resort to special tricks to aid the latter, since there are always a few (three or four) very bright pupils who have a lot of time to read and whose aid we may enlist in helping the slow. One of the slow pupils was named Horace. As a pupil he was almost a blank. His only interest was in horses. Tom, on the other hand, should have been in a higher grade and was an inveterate reader. One day Tom said something about Wildfire, the horse of Zane Grey's novel. Horace wanted to hear more about it, but I told him he might take the book when Tom was through. He actually read the book. It was his first. Tom caught on, and read everything he could find about horses and gave interesting incidents. It cultivated his interest in animals, which was weak, and gave Horace an introduction to interesting reading.

Charles was a mechanical genius, but he would not look at a book if he could help it. There were some books about boys that did wonderful things with motor boats and aëroplanes. The children learned that the discussion of any kind of machinery would arouse the interest of Charles, and they tantalized him into learning to read. We liked to have him pronounce judgment on the reasonableness of the ideas. Sometimes he would say, "Shucks! they never can do that," or "I wonder if anyone ever will do that."

Securing interest through competition for tangible scores.—Among the most impelling instinctive tendencies in human beings is the competition for tangible scores, such as those in baseball, football, golf, bowling, billiards, rifle-shooting, etc. This interest is exhibited not only in the zeal of the players but also in the rapt attention that enthusiasts give to the re-

ports of the scores in the newspapers and on the bulletin boards in the large cities. Recently this interest in tangible scores has been used in practice exercises in school by exhibiting individual scores and graphs showing the rise or fall of each pupil's efficiency, and by exhibiting class scores and graphs showing how the score and progress of one class compared with similar data from other classes. O'Brien describes the effectiveness of such tangible scores in arousing pupils' interest in improving the speed of their silent reading during his extensive experiments. Speaking of the individual graph, he says:

> The single line ascending or descending tells the pupil the story of his success or failure. It is simple, impressive, and comprehended at a glance. . . . The direction or slant of the line tells the whole story. The ascent of the line becomes a source of joy; its decline a source of grief. The latter tells, moreover, in a convincing manner the necessity for greater effort on the next occasion. The zest of a game, the spirit of combat, is aroused. The pupil becomes determined to "make that line go up." . . . Of the various devices employed in the present investigation, the individual graph made one of the strongest appeals to the pupils and proved one of the most effective instruments in stimulating their speed in silent reading. (**4**: 75)

Frequent and varied devices needed to interest many readers.—These examples serve to illustrate methods used by skilled teachers to interest pupils in silent reading. While the naturally talented and voracious readers need little artificial stimulus, probably a fourth of each class will do only a small part of the reading necessary to develop skill unless they are periodically stimulated by varied special devices to arouse their interest. We shall now turn our attention to the second phase of a pupil's needs in developing skill in silent reading and to the corresponding phases of teaching.

2. **Giving ideas and meanings for interpreting reading.**—The methods that are used in progressive schools to give pupils ideas and meanings that will aid them in interpreting reading matter were illustrated at length in the two preceding chapters

on understanding social life and problem-solving. It will suffice here to give one further example to illustrate this phase of the training. The example is from a seventh-grade class that had begun the study of Africa at the time the question of the disposition of the German colonies was before the Versailles Peace Conference. From the current newspapers and magazines the children brought in clippings, some of which were read to the class and commented on. Several of the articles proved unintelligible to the children. They found that in order to understand them, much more information about Africa was needed. Later, after five weeks' study of Africa in their textbook and many supplementary sources, the pupils turned to the original clippings and to others that had been added, and found that they could now read them with understanding.

3. **Building up the pupil's automatic reading vocabulary.**—The third need of a child who is to become a skilled silent reader (as noted on page 342) is a large automatic reading vocabulary. We have illustrated the systematic increase of this vocabulary in the primary grades by a number of devices. These include (1) the flash drills with word and phrase cards, and (2) the writing of new and difficult words and phrases on the board, where they are analyzed phonetically, sometimes defined, and, in general, woven into their place in the story. This second practice is very common in connection with oral reading in the intermediate grades and seems to me very useful. The need of it is illustrated by some of the absurd mistakes that children make. For example, when my youngster was in the fourth grade, he would frequently use in conversation words derived from his wide reading and impart to them the weirdest pronunciation. Thus, one day while looking at a catalogue of a college, he said, "Here's a picture of the *boogy-zoogy* building," meaning biology-and-zoölogy building. While the use of the dictionary is to be encouraged in the higher grades in such cases, a more rapid growth of the pupils' automatic vocabularies is probably facilitated by continuing to emphasize on the black-

board daily a dozen or more words and phrases from the reading matter. These should include not only literary phrases, such as "forest primeval," "unjust sentence," "infirm steps," "swarthy-skinned," from recreational reading, but also technical terms, such as "irrigation," "equatorial region," "Mediterranean," "Teutonic civilization," etc.

Individual vocabulary books.—Another device was described by a sixth-grade teacher[1] who had organized in her class a "Just-for-Fun Club" which read from a select list of books and told stories of what they had read. The vocabulary phase of the work was described in these words:

> During the language periods, lessons were given which involved the use of ideas gained from their reading. For instance, the children made vocabulary booklets in which they put new and unusual words which they had learned to use. One day a week each pupil responded to roll call with one new word from his silent reading. The word was written on the blackboard, pronounced, and the meaning was given. Then the child would tell how it had been used in his particular reading.

Other devices.—Several other types of lessons for building up the pupils' automatic reading vocabulary are given on pages 197–203 of C. R. Stone's "Silent and Oral Reading." (**1.**) The first lesson was based on Poe's "Bells" and consisted in listing the various words descriptive of each of the kinds of bells. The second lesson was on Hawthorne's "Chimæra" and centered in the listing of expressions from the reading that meant the same as "Pegasus." Another lesson involved the detailed study of prefixes, suffixes, and word-stems in such words as "subtract," "detract," etc. Other lessons illustrate in detail other devices for enriching the pupils' automatic reading vocabulary. As suggested on page 343, we may expect to have published within a few years adequate systematic manuals of devices for acquainting pupils with all the ten

[1] Harriet F. Siewart.

thousand common words which were included by E. L. Thorndike in his "Teacher's Word Book," published in 1921.

With these impressions of a few devices for (1) arousing a pupil's interest in silent reading, (2) giving him a wealth of interpretative ideas and meanings, and (3) increasing his automatic reading vocabulary, we are now ready to consider the fourth aspect of his training in skillful silent reading; namely, practice exercises in the several common kinds of cursory and of studious reading.

4. **Practice in cursory and in reflective, studious reading.** *Material and method should be mutually appropriate.*— Before describing the several kinds of reading matter and reading exercises to be considered under this heading, let us note that the material to be read should be appropriate to the type of practice to be given, and, conversely, that the method of reading should correspond to the nature of the material. For example, considerable rhythmic poetry is particularly appropriate for oral reading rather than silent reading; arithmetic problems call for detailed analysis rather than rapid, cursory reading; while "Treasure Island" is especially suited to rapid, cursory reading for the mere enjoyment of the action. Violations of this general principle of adapting the method to the material were common in the English classes in high schools a few years ago, when poetic English classics would be done to death by methods of reading appropriate for a legal contract or for directions for building a bridge, but quite inappropriate in much æsthetic reading.

a. **Exercises in cursory, unreflective reading.** *Reading short stories in readers.*—Modern school readers are coming more and more to be rich collections of fascinating short stories from all lands and literatures. Owing to their wide sale these books are comparatively cheap, thus providing a very suitable, convenient body of material for rapid, cursory reading. If read silently as a class exercise, the material is usually broken into suitable units for pauses during which the slow readers catch up

with the fast ones. These units are usually thought sections suitable for brief comment by pupils and teacher. The units and pauses offer opportunities for bringing out new words and phrases and for reading orally short selections particularly suited to oral reading. While such practices are valuable, it is probably desirable, in order to preserve the essential features of cursory reading, to arrange for much of this reading to be done individually, so that each pupil can advance at his own pace.

Supplementary story-reading.—The collecting in the classroom of a library of storybooks makes it easy to require pupils to read whole storybooks silently. For example, when my youngster was in the seventh grade, during November each child who could do so was asked to lend an *adventure* book to the room collection. Charging cards were arranged, a library committee of pupils appointed, fines collected, etc. After reading a book, each pupil filed a report on a card or slip of paper four by six inches. Some sample reports are shown on page 375. At the end of the month the adventure books were taken home, and the children brought *animal* books, such as those by Ernest Thompson Seton, Jack London, and Kipling, to be read during December.

Cursory reading of books of travel, geography, history, science, etc.—A strong appeal for a large amount of cursory reading of popular geographical, historical, and scientific material has been a notable feature of Professor Franklin Bobbitt's recent discussions of reading. He says, for example, that in geography pupils should read rapidly many such books as Darwin's "Voyage of the Beagle," Doubleday's "Year in a Yawl," Perkins's "Dutch Twins," and such periodicals as the *National Geographic Magazine.* In history he suggests that pupils read such books as Parkman's "Oregon Trail," Marshall's "Scotland's Story," and Mowry's "Inventors and Inventions." (For his fuller lists see reference 11, at the end of this chapter.)

Exercises in newspaper-reading.—Finally, under cursory reading we may present the example of a seventh-grade teacher,

Harold Talbot 328 pages

R. L. STEVENSON—The Black Arrow

1. This story is about Dick Shelton and the War of the Roses. Dick Shelton makes up a band called the Black Arrow which he uses in the wars.
2. It is a very good book for it keeps you on your toes every minute wondering what's going to happen next.

Harold Talbot 313 pages

M. M. DODGE—Hans Brinker

1. This is a story of a poor Dutch boy and girl. Their father is crazy and can't do anything. In the end a great doctor cures him. When Hans grows up he becomes a great doctor.
2. I think it is a very good book. It shows the Dutch life and customs very well.

Harold Talbot 307 pages

OWEN JOHNSON—The Tennessee Shad

1. This is a story of a boy in a prep school. He joins with another boy in making up a company. They work all sorts of fraudulent schemes on the other boys to get money.
2. This is a very funny book. It kept me laughing most of the time.

Miss Besse Cannon, who organized a series of exercises in newspaper reading and writing, as described in her account printed below:

We had been collecting and selling old newspapers through the school. I discovered that very few of the seventh-grade English class ever read a daily paper. This disappointed me, so I attempted to give them some practice. The first lesson proceeded about as follows:

Teacher. You have been so generous with your papers this morning that I believe you must like to handle them. Charles, if you will get on the job and deliver the *Star* to each pupil, we shall have a little reading game with this new material.—What papers are published daily in Kansas City?

Rachel. Kansas City Star, Times, Post, and *Journal.* We take those, Miss Cannon.

T. Very good indeed. Now for our game. We are to discover something on each page that has not been on a preceding page.

Otterson. Gee! I don't understand, and I want to play that game.

T. For example, what general name will apply to the kind of reading on page 1?

Nena. "Current events."

James. I'd say "news."

Helen. What about that weather report?

James. That's "news."

T. All who feel that "news" is the best general name may use it. What do you find on the second page which was not on the first "news" page?

Thomas. Advertisements and illustrations.

T. On page 3?

William. A cartoon.

T. How many understand what we are doing? Finish it now, alone. You may read for twenty minutes; then I want to talk with you again.

Each child worked interestedly, quietly, and earnestly. They read and seemed to enjoy it, sometimes calling a neighbor's attention to some newly discovered item of interest, particularly a mention of "our school."

Teacher. As I call out the page you may respond—page 1.

Pupils. News.

T. Page 2.
P. Advertisements and illustrations.
T. Page 3.
P. A cartoon.
T. Page 4.
P. Nothing new.
T. Page 5.
P. Nothing new.
T. Page 6.
P. Folks and foibles.
T. Page 7.
P. Recipes and dressmakers' hints; theater attractions; bedtime stories.
T. Page 8.
P. Nothing new.
T. Page 9.
P. Sport news.
T. Page 10.
P. Gossip of society; speaking the public mind.
T. Page 11.
P. Movie ads.
T. Page 12.
P. Latest market news.
T. Pages 13–17.
P. Want ads.
T. Page 18.
P. Editorials.
T. Page 19.
P. Continued story.
T. Did you ever realize before how many people can find something in each paper for them?
Nena. Miss Cannon, my sister was in your room last year and she liked it when you edited that newspaper. Could we do it this year?
Otterson. Yes, there are sixteen topics and forty-two kids. That would be great. May I write the sport page? I know a lot about our basket-ball teams.
T. How can we get each section cared for?
Helen. Let us write our names after the topic we are most interested in.

T. We'll see how that works out. Tomorrow, hand in your *list* and a page of suggestions for the section you are most interested in. You may work at it now until the bell rings.

The results were as follows:

1. We had a very clever paper.
2. We visited the *Kansas City Star* building.
3. Fifteen children subscribed for the paper.
4. The bulletin board was generally filled with clippings.
5. Magazines began to appear.
6. Morning exercises were given over to current events.

Elements of skill in cursory reading. Rapid recognition, selection, and skipping.—Thus we have given examples of practice exercises in cursory silent reading centering in school readers; storybooks; popular books dealing with travel, geography, history, and science; and current newspapers. The essential elements in skillful cursory reading which such practice contributes are probably (1) skill in rapidly recognizing words and meanings and (2) skill in selecting interesting, significant portions and skipping the rest. We shall now turn to the discussion of practice in reflective, studious reading.

b. **Exercises in reflective, studious reading.** (1) **Detailed analysis of meanings.**—Material appropriate to this type of reading is found in anything in the child's experience that naturally requires detailed analysis to understand it or follow it. An example from everyday life is found in the efforts of children to understand peculiarly worded hymns. Concerning such experiences one teacher[1] said:

I have great sympathy for children who can't understand unusual arrangements of words. I remember being very much puzzled about these lines of a hymn when I was a child:

> Thou of Life the Fountain art,
> Freely let me take of Thee;
> Spring Thou up within my heart,
> Rise to all eternity.

[1] Mary Roberts Scott.

My mother helped me, and I analyzed the first sentence in a childish way; and after that I always felt that I had a method of attack when I found something that didn't seem to have any sense in it. The exercise was so helpful to me that I like to try to teach children to do the same thing.

Application to arithmetic problems.—Concerning the application of such methods to arithmetic problems, the same teacher said:

Take a sentence like this, for instance: "Separate by points each side of a square yard into three equal parts." It takes considerable dynamic force for a fifth-grade child to get through that. The first four or five words are likely to confuse him, and if it has not been demonstrated to him frequently that those crazy combinations of words really mean something, it is likely to floor him.

One year when everyone was getting interested in reading, and the children were beginning to think they could read anything, we came upon this: "With a pole or tape a rod in length measure the distance in rods and feet around a square or field." Some little time elapsed; then a child came up to me with his face beaming. I told him to whisper the meaning to me if he knew it. "It says for me to measure something. May I take the tape measure and go out in the yard?" he asked. I said, "John knows what it means, and he wants to go out into the yard. Instead of that we will play it is a riddle, and he shall be umpire." Every child in the room was alert. That particular type of sentence was soon mastered.

Training in detailed mathematical reading.—There has been less discussion of the devices to be used in teaching such detailed analysis of meanings than of any of the other types of reading. However, the following examples will put us in touch with some of the material bearing on such reading in the case of mathematics.

(*a*) In his "Psychology of Arithmetic" (pp. 89–91) Professor E. L. Thorndike shows that the use in the elementary books of words that are rare and unimportant in children's experiences, such as "absentees," "bouquet," "bronze," "worsted," etc., makes the reading and understanding of many

problems unnecessarily difficult for pupils. On the other hand, he shows (on pages 133–138 of his "New Methods in Arithmetic") that problems are frequently made "unduly easy" in their wording, so that pupils are not required to do the same kind of reading as they would if they met such problems in social situations where they would be confronted with printed price lists and similar complexities.

(*b*) In an article entitled "Improving Ability to read Arithmetic Problems" (**10**) Miss Estaline Wilson describes a variety of devices which are intended to make the pupils realize more clearly the social, material, and arithmetical realities involved. Sometimes the quantitative facts are completely ignored until, through reading, discussing, and even dramatizing, the pupils have learned what the problems are really about.

(*c*) Mr. W. C. Reavis has used extensively, in elementary schools, tests consisting of problems without numbers and of incomplete problems such as those shown on page 381. Mr. Reavis states that the results from these tests readily show which teachers have trained their pupils in the careful reading of problems and which ones have not. After the first tests have been given, noticeable improvements in reading problems may be secured by proper supervision.

(*d*) Finally, Mr. E. R. Breslich, a noted teacher of high-school mathematics, states that when a pupil says he cannot understand a problem, he asks, "Not any of it? Look at your book and read the first few words. Do you understand that?" The pupil usually says "Yes," and begins to smile. Mr. Breslich then has him read through the whole problem, phrase by phrase, in the same careful way. Frequently, this detailed attack is all that is necessary to master the problem. Sometimes a phrase that is not understood is passed for the moment and then cleared up after the rest of the problem has been read. With each new phase of mathematics (geometry, trigonometry, analytical geometry, etc.) Mr. Breslich finds that this insistence upon grasping the exact meaning of each

Instructions to be Read by Teacher and Pupils

The following is a sample *problem without numbers.* Read it carefully, and then think how you would solve it.

1. If you know the number of crates of oranges bought by a fruit dealer and the price paid for them, how would you find the cost of a single crate?

Answer

Divide the price paid for the crates by the number of crates.

On the inside and back of this folder are other similar problems. Try them in order, but do not spend too much time on any problem, if you find you cannot solve it. You will be given six minutes to work. Now open your folder and begin.

Instructions to be Read by Teacher and Pupils

The following is a sample of an *incomplete* problem. Read it carefully and then think what you must know in order to solve it.

1. James sold 85 newspapers on Saturday. What must you know to find how much money he received?

Answer

You must know the amount he received for one paper.

SAMPLES OF REAVIS'S TESTS, GIVING PROBLEMS WITHOUT NUMBERS AND INCOMPLETE PROBLEMS

To give training in careful reading and detailed analysis of problems

mathematical term must be reiterated. Otherwise, many of the pupils will use the term in loose, meaningless ways, or sit in lazy, discouraged contemplation of a problem, instead of attacking it by a detailed analysis of the meaning of each word and phrase.

Analyzing meanings in higher technical studies.—Frequently in college classes in education I have found it profitable to have the class pause for a few moments to dig out the force or meaning of particular words in a sentence. For example, in one text there occurred a psychological definition of the term "sensations" as designating "consciousness of qualities or conditions either of things or of one's own body." One girl who was asked to recite upon this point described sensations as "consciousness of things of quality." Such examples are so numerous in technical studies that they justify us in giving pupils careful training in the detailed analysis of meanings which we have listed first in our kinds of reflective, studious reading.

Elements of skill in detailed analysis of meanings. Knowledge of ignorance, courageous attack, persistent application.—Among the chief elements of skill in the detailed analysis of meanings that a pupil should derive from such practice exercises are the following:

1. To know when he understands and when he does not.

2. To be courageous and hopeful in attacking difficult words, phrases, sentences, paragraphs, etc.

3. To be persistent in working the material over, getting the force of each word, the relations of words in peculiar constructions, the effects of modifiers, etc.

(2) **Practice exercises in grasping and organizing main points.**—The type of reflective silent reading indicated in this heading has probably been more successfully cared for in recent years than any other phase. Most of the examples that experienced teachers give me in my classes fall under this head. For instance, before me is a long description of the methods a fourth-grade class used in reading a selection about the Pilgrims and finding answers to such questions as these: "Why did the Pil-

grims leave England?" "How did they like Holland?" Another teacher described at length a lesson on Socrates in which the pupils read rapidly and silently section after section of "Men of Old Greece." After some preliminary discussion of Athens and of Socrates, the teacher's talk, in preparation for reading the first section, included such remarks and questions as the following: "Now turn to the story of Socrates, the boy who lived in Athens, and let's see how his life differed from yours. Find out what was prophesied for him when he was a child and whether the prophecies came true. See what sort of school he attended," etc. In our account of Miss Shepherd's seventh-grade lessons (on pages 363–365), we gave a detailed description of her methods of training pupils in finding central thoughts in material read.

Practice in outlining. Graded steps from imitation to independence.—We may supplement these several examples with an account of the methods used by an upper-grade geography teacher[1] in training pupils to outline material. The manner in which she has graded the steps by first giving the class an example of her own outlining and then gradually assigning more and more difficult processes is noteworthy. In any art, imitation offers the most effective initiation for giving the learner an idea of what to do. Learning the art of outlining is no exception to this rule. The five steps in this teacher's procedure are clearly set forth in the following paragraphs:

1. *Teacher's blackboard outlines supplemented by pupils.*—My first step is the assignment of lessons in which I have outlined on the board the main points for the class. Together in class we study the topics of the outline and of the text, especially noting how the organization of the points in the text supports the plan of the outline. In the class discussion I help the children to fill out the outline by organizing the subordinate material around the central ideas, and I give special encouragement to those individuals who are having difficulties in the work.

[1] Hannah Lindahl.

2. *Class develops outline on board.*—My next step is the assignment of lessons to be read intently by the pupils in their supervised study period; then at the beginning of the recitation period we develop on the blackboard an outline of the assignment. It is here that I expect the children to take the initiative—to make suggestions as to main and subordinate points, to criticize one another's statements, and to give reasons for, and verifications of, suggestion and criticisms. This training helps the children to read thoughtfully and to search for the pivotal point in each topic or paragraph. Afterwards the outlines are copied in the pupils' notebooks.

3. *Individuals outline assignments independently.*—Following this work comes the assignment of lessons in which each individual pupil makes his own outline for the next day's lesson during the supervised study period, and this is the opportune time for me to find out just what is the weak pupil's difficulty. Each day following the day for preparation of the outline, the recitation part of the period is spent in having different children discuss the main points of the lesson as they have organized them in their outline. Detection of faulty silent reading is then comparatively easy, and many of the children are able to give suggestions and make corrections. Often it is evident that the children have failed to comprehend as they have read, for they have read words—not meanings.

4. *Teacher assigns questions to direct the study.*—The fourth stage in this development of silent-reading ability is to assign lessons by means of questions that will direct the child's study. These are leading questions that demand a thoughtful, comprehensive organization of the material as he reads silently.

5. *Individuals devise questions covering main points.*—Following this, I assign lessons in which I ask the pupils to make out lists of questions that they think cover the essential elements of the lesson. This step is greatly in advance of the previous step, for now the child is thrown entirely upon his own powers of effective silent reading, of interpretation, and of organization. Such questions, given by pupils, as do not center around fundamental and vital points of the lesson are criticized in the class discussion, and an effort is made to lead each child to read main factors as main factors and subordinate elements as subordinate elements.

Experimental proof of value of practice in grasping, organizing, and outlining main points.—A technique in outlining and

studying, somewhat similar to that just described, was taught to pupils by Mr. W. L. Beauchamp in an experiment conducted in 1922 in The University of Chicago High School. He taught two parallel and similar classes in general science so that all studying was done in the classroom under supervision. One class was given specific instruction and practice, for a period of about three months, in economical and effective outlining of main points and subpoints. The other class was allowed to pursue its own devices in taking notes, reviewing, etc. At the end of each large unit of subject matter (covering three or four weeks of study) the pupils in both classes were tested regarding their ability to reproduce all they could remember of the unit. It was found that the class that had been given the special training reproduced 8 per cent more at the end of the first unit, 27 per cent more at the end of the second unit, and 73 per cent more at the end of the third unit than did the untrained class.

Elements of skill in grasping and organizing main points.— These examples illustrate clearly the exercises and devices that numerous skilled teachers are using to give pupils practice in grasping and organizing the main points of an article or chapter during silent reading. As suggested on page 348, these exercises may include (1) reading with the definite intention of culling the main points; (2) underlining these; (3) reviewing the material to note them; (4) recalling them mentally after finishing the reading; (5) writing an outline of them; (6) discussing them with someone. From such practice the pupils should form habits of carrying on such activities in much of their reflective, studious reading.

(3) **Reading to remember main ideas.**—As indicated on page 349, effective reading to grasp and organize the main ideas also contributes to remembering these ideas. However, after they are once grasped and organized they may be forgotten unless they are reviewed sufficiently to fix them in mind. Considerable investigation has been devoted to determining the best

methods of memorizing organized material that we desire to retain. Some of the conclusions from these investigations I have utilized in drawing up the following directions to students in my own classes who are studying for tests upon assigned readings in textbooks. They are reprinted here so that they may be of service to some students of this text. You may not only follow them, if you care to, in your own studying but you may also modify them and adapt them to training pupils in the upper grades or in high school.

HOW TO STUDY FOR THE TESTS

In order to succeed in the tests you will need to study each assignment several times. The following procedure is suggested:

1. *First rapid reading.*—(*a*) Read a chapter through as rapidly as you can comprehend it. (*b*) If you own the text, underline a few "key" words or phrases in each paragraph. Watch alertly for these. As a rule, don't underline long statements. (*c*) Determine your reading rate by writing on the margin of the page the time of starting a chapter, and later noting the time when you stop reading or are interrupted. From the number of pages completed compute the number of pages you can read in an hour. Fast readers will read fifty pages an hour; average readers, about thirty pages an hour. Those who read more slowly than this are handicapped by a slow reading rate.

2. *Review for outlining.*—(*a*) After this rapid first reading, review the chapter and outline its main points and subpoints *mentally*. (*b*) Assist this *mental* outlining by numbering the points with pencil in the book (if you own it). Use some such scheme as "I," "*A*," "1," "*a*" to indicate main divisions and subdivisions. (*c*) Many students will be further assisted by making a sketchy *written* outline consisting of the "key" words and phrases numbered as in (*b*). Other students will profit more by *merely rereading* the underlined and numbered points and trying to form a clear mental outline of them. Think carefully. Write rapidly. Use few words. Your grasp of the organization of the chapter as well as its specific points will be tested.

3. *Review for memorizing ideas and organization.*—After the chapter has been comprehended and outlined as described above, restudy the text and your outline (mental or written) several times in order

to fix the particular ideas and their organization in your memory. Try to recall from your outline the related discussion in the text.

4. *Psychological intervals.*—Begin at least six days beforehand your study of the portion of the text assigned for a test. By the second day before the test you should have all the assignment well outlined, its organization fairly clear, and the ideas fairly well memorized. The day before the test, carefully review your outline (mental or written) and the text and clear up points which you cannot easily recall from memory. Before coming to class try to get an unhurried "last look" at your outline. If these directions are followed, your record in the tests will be greatly benefited.

5. *Attend to questions strictly.*—When the questions are placed on the board put all books and outlines away. Pay careful attention to the wording of the questions and give concisely what is asked for. Be sure that your fountain pen is filled or your pencil well sharpened. Have several sheets of paper ready so that you will not have to open your notebooks to get a new supply. The time is limited but ample.

(4) **Practice in the critical evaluation of statements.** *Controversy over the battle of Lexington.*—Perhaps the most infrequent type of practice in silent reading in elementary schools is practice in critically evaluating printed statements in order to determine if they are true or valid, or if they are inconsistent, or if the policy they express is sound and profitable, etc. The possibilities of organizing such practice, however, particularly in historical studies, are suggested by the many controversial questions that arise in determining historical truths and policies. For example, Who was responsible for the actual beginning of hostilities in our Revolutionary War—the Americans or the British? In the case of the recent World War we became familiar with the gravity of such questions when diplomatic books of various colors were issued by the several European governments, with evidence intended to throw upon their enemies the blame for beginning the war. Great skill was required for an American to read these accounts so as to get at the real truth in the matter. In the case of the American Revolution the issue centers to a considerable extent in the question Who fired the

first shot at the battle of Lexington—the British regular soldiers or the Massachusetts militia? There are numerous documents tending to support contradictory answers to this question. Some of these documents have been brought together in a volume entitled "Parallel Source Problems in American History," intended primarily for college students, but it is obvious from the brief quotations printed below that even eighth-grade pupils could canvass with profit some of the more elementary evidence. One of the eighteen documents printed in the Lexington chapter of the "Sources" and signed by "One of the Committee for Safety" begins as follows:

> Watertown, Wednesday morning,
> Near ten o'clock, *April 19, 1775*
>
> To all Friends of American Liberty let it be known:
>
> That this morning before break of day, a Brigade, consisting of about one thousand or twelve hundred men, landed at *Phipp's* farm at *Cambridge*, and marched to *Lexington*, where they found a Company of our Colony Militia in Arms, upon whom they fired without any provocation, and killed six men and wounded four others. By an express from *Boston*, we find . . . **(13)**

You can readily imagine the effect of such news upon American readers of that day. On the other hand, you can realize the importance of the contradictory testimony given by an officer of the British regulars to the effect that the colonial militia fired first upon the approaching regulars, etc.

Standards for evaluating testimony concerning events.—Almost every day in reading the newspapers we are confronted with the necessity of evaluating, in connection with momentous issues, just such contradictory accounts as appear in these colonial testimonies. In view of this fact the following critical notes from the introduction to the eighteen Lexington sources are very instructive:

> We naturally wish to know (1) What opportunity did each witness have for learning the truth? Was he a participant in the events

described? Was he a spectator? Or did he get his information from eyewitnesses, or only from heresay? We try to determine also (2) what possible motives existed for downright falsehood, or for twisting or coloring the truth, or for suppressing part of it, or for misinterpreting facts. How probable is it that each particular witness would be affected by any of these motives? It is safe to ask also (3) What are the possibilities for honest mistakes or for self-deception on the part of any witness? How soon after the event was the record made? (**13**: 5)

Historical problems organized by experts safer than current problems.—It would be possible for a teacher to give pupils training in critically evaluating contradictory accounts of current events as found in the daily papers or in such unbiased reviews as the *Literary Digest*. It would probably be dangerous, however, to permit most ordinary teachers to attempt this. On the other hand, from interesting historical sources expert historians can organize and publish source material concerning significant questions of the past which will provide almost as valuable training as could be secured from controversial accounts of current events. The types of problems to be set for the study of such sources are suggested by the following quotations from the material on the battle of Lexington:

The student in all cases should be prepared to give the exact references to sources justifying his answers.

1. What connected accounts on each side seem to you of most importance? Why?

2. What was the fundamental point on which the accounts differed? Why was it important?

3. Why do the contemporary American accounts emphasize the dispersing of the Lexington company?

4. What statements in extracts 1, 2, and 3 are not confirmed by the rest of the evidence? (**13**: 9)

Twenty-four more questions are contained in the assignment.

Need ready-made materials to provide for critical evaluations.—The organization of published material upon the child's level

suitable for practice in such critical evaluating reading would provide training in one of the most important forms of reading that adults are called upon to do. The material should prepare not only for evaluating accounts of current events in later life but also for evaluating proposed laws, seeing the bearings of current laws, finding the hidden implications in contracts, evaluating varied interpretation of the Bible, etc. As indicated on page 350, such material should give the pupil practice in the following activities:

1. Recalling related facts and evidence with which to test the truth or value of the printed statements.

2. Making cross comparisons within a single document to ascertain inconsistencies, contradictions, supporting arguments, etc.

3. Comparing with other documents bearing on the same question.

The technique of training in problem-solving (summarized on pages 323–324) is practically all applicable in training pupils in doing this type of critical evaluating reading.

(5) **Practice in bibliographical research.**—We have now reached the final type of reflective, studious reading in our discussion; namely, practice in consulting books and periodicals to discover needed information or to find answers to problems. We have called this practice in bibliographical research. Such practice is becoming very common in progressive elementary schools, and examples abound particularly in the books on how to study. For instance, in the study of the partitioning of Africa mentioned on page 371, the seventh-grade pupils searched for needed information in the following manner: they consulted (1) their textbook in geography; (2) supplementary geographical readers on Africa; (3) other special books about Africa; (4) special books on related subjects, such as exploration, railroad-building, etc.; (5) current newspapers and magazines, as well as some newspapers five, ten, and twenty-five years old; (6) a children's encyclopedia.

Drill game in using index etc.—A device for giving drill in consulting the index, the table of contents, the maps, etc. in such a study as that outlined above is contained in the following description by a sixth-grade teacher:[1]

A GAME

Material: Supplementary reader on South America containing (1) alphabetical index, (2) twelve map plates, (3) chapter titles.

Method: Use large white cards on each of which is printed one item from the material. Give each pupil a copy of the book and explain the game. Then hold up one card and have the pupils find the reference. The one who finishes first stands. He receives the card. There are fifty cards, and the one who receives the largest number wins the game.

To interest all pupils in such games some handicapping arrangements should be made, such as having one team of six slow readers compete with another similar team, or having one team of fast readers compete with another similar team. In any case the slow readers should feel they have a chance to win occasionally or to aid some team in winning.

Research on the value of mountains.—Another geography example occurs in the work of the teacher[2] whose systematic eighth-grade training in outlining was described on page 383. She followed this training with the practice described in the following quotation:

The next step is the assignment of topics in the form of problems, and several references are cited which the children must read silently. I shall illustrate this with a type lesson.

The problem was stated as follows: From the human standpoint would it be better if there were no mountains in the world? The references were several standard geography texts.

From the previous study of the meaning of economic relations, the pupils themselves decided to place on a large sheet of paper these words: "Economic Relations of Mountains"; and at the top

[1] Florence Woodson. [2] Hannah Lindahl.

of the left-hand side of the page to place the word "Advantages," and at the top of the right-hand side "Disadvantages." Each child then read silently the various references and organized the points under two headings, having been cautioned to make no duplications. The next day the lists were brought to class and were freely discussed, criticized, verified, clarified, and illustrated by members of the class. Having made our lists satisfactory to the class, we then worked on the problem of judging the influence of these advantages and disadvantages.

Fifth-grade research in writing a historical play.—Even as low as the fifth grade we not uncommonly find teachers giving pupils practice in looking through the table of contents and index of a textbook or of a supplementary reader, or even in consulting a children's encyclopedia in order to find material needed for some purpose. An elaborate example of such research in the study of history occurred in the case of the fifth-grade class, which was engaged in writing a play to represent the fusion of Roman and Germanic civilization in Great Britain (as described on page 203). The considerable amount of investigation in books which is entailed by such activity probably justifies us in characterizing even such fifth-grade activity as practice in bibliographical research, the last of the types of reflective, studious reading included in our discussion.

Review of elements in training in skillful silent reading.—As outlined on page 351, the whole task of training pupils to be skillful silent readers includes the following elements: (1) arousing interest; (2) giving a stock of interpretative ideas; (3) building up an automatic reading vocabulary; (4) giving practice in both (*a*) cursory, unreflective reading and (*b*) reflective, studious reading, including (1) detailed analysis of meanings, (2) grasping and organizing main points, (3) reading to remember, (4) critical evaluating of statements, and (5) bibliographical research. In nearly all the cases it was possible to secure numerous illustrations from progressive schools of teachers actually engaged in conducting appropriate exercises. The most notable exceptions were in the detailed analysis of

meanings and the critical evaluation of statements, in which less practice is being given than in the other types of reading. In the second case, however, the abundance of suitable material for the critical study of historical sources makes it only a matter of time until ready-made collections with appropriate problems will be prepared by historical experts and published for use in elementary schools.

Make pupils aware of rules in skillful silent reading.—After educators have themselves become clear concerning the practices to pursue in the various types of skillful silent reading, we may not only give pupils practice in the several types but also teach them the rules to follow. For example, in the detailed analysis of obscure or difficult meanings, the pupils might be taught: (1) in the case of important obscure words, to remember to consult the dictionary for the meanings; (2) in the case of involved poetic sentences, to search for the subject and predicate; and (3) in involved arithmetic problems, to outline the major and minor steps in the solution before beginning to cipher. In such reading as determining the validity of printed testimony, the historians have already developed certain standards (such as those quoted on pages 388–389) which pupils should learn to use in judging the probable truth of statements that they encounter in their newspaper-reading. Eventually we shall probably have such rules for procedure in all types of silent reading formulated in simple manuals for practice which any well-trained teacher can easily follow.

Increasing rates of reading in each type.—In the types of reading that we have described, the pupil's rate is likely to increase as he masters the elements of skill appropriate to each type. Additional increase may be secured by timing the pupil's performances in each type, urging him to greater speed, keeping graphs, etc. (as illustrated on pages 358 and 370). Sometimes training in one type (such as careful analytical reading) may interfere with the rate in some other type (such as rapid cursory reading).

Conclusion of chapter on silent reading.—This concludes our discussion of the third of the "four thoughtful processes" to be discussed in Part II of the text. The first of these was understanding social life. The other three—namely, problem-solving, silent reading, and the communication of ideas—are intellectual activities in which progressive elementary schools endeavor more and more to give pupils skill. In the case of problem-solving we found that a very definite technique has been perfected for giving pupils practice and skill. In silent reading we found that the schools are busily engaged in trying to devise such a technique. In the next chapter, on learning to communicate ideas, we shall find that the principles of correct teaching have been clearly realized for some time and that considerable scientific progress has been made in perfecting practice exercises and a definite technique of teaching.

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CHAPTER XII

PRACTICE IN COMMUNICATING IDEAS

Main points of the chapter.— 1. Topics from everyday activities replaced discussions of abstract virtues in elementary composition during the nineteenth century.

2. Emphasis was shifted by Pestalozzi from *written* to *oral* expression.

3. He also emphasized the following practical rules for training pupils in expression:

a. Make sure that the pupil has clear ideas to express.

b. Build up his vocabulary.

c. Train him to keep in mind longer and longer series of ideas to be expressed.

4. Conversational or discussion lessons in all subjects were another Pestalozzian development that gave pupils active vocabularies along many lines.

5. Toward the end of the nineteenth century we get these two additions to the Pestalozzian practices:

a. Contribution recitations for training pupils in presenting a series of new ideas to an audience.

b. The creation of real audience situations to appeal to the strong instinctive interest in communication and to give standards for judging the effectiveness of the pupil's performance.

6. The importance of *oral* communication at present is shown by its use in conversations, practical discussions, dictated business letters, and short talks.

7. The following types of school activities especially train in oral communication:

a. Conversational and discussion lessons.

b. Contribution recitations.

c. Telling selected points after silent reading.

d. Special expressional devices, such as composing plays and conducting a current-events club.

8. Written communication is especially practiced in the elementary school in letter-writing and in written reports in the content subjects.

9. Varied oral and written practice with a rich social topic that is intensively studied in the English periods furnishes some of the best training in communicating ideas.

10. Practice in correct grammatical usage is being organized on the basis of scientific knowledge of the common errors in children's speech.

11. The success of instruction in written composition is being judged by standard tests and scores.

12. Drawing, as a means of communicating ideas, may be taught with the same emphasis upon expressing some experience to others and building up a pupil's expressional vocabulary that we found in the case of teaching linguistic communication.

Introduction.—Learning to communicate ideas is the last of the "four thoughtful processes," or four types of learning, to be discussed in Part II of this book. The phrase "training in expression" might also have been used to furnish a title for this chapter, but the title "Practice in Communicating Ideas" has been chosen instead, because it suggests one of the most important factors in modern training in expression; namely, the existence of a real audience to which the ideas are to be communicated.

Sections of the chapter.—We shall divide our chapter into the following sections:

I. *History* and *principles* of teaching composition (p. 398).
II. Practice in *oral* communication (p. 407).
III. Practice in *written* communication (p. 424).
IV. Varied oral and written practice with a *rich social topic* (p. 439).
V. Correct *grammatical* practice; scientific outlines (p. 448).
VI. *Measuring* the *results* of practice in composition (p. 453).
VII. Learning to communicate ideas through *drawings* (p. 457).

The first section, which follows the historical method, will quickly introduce us to the fundamental principles of training in the communication of ideas.

Section I. History and Principles of Teaching Composition: from Written to Oral

Example. Vitalizing composition in a country school. *From "Virtue" and "Honesty" to "Making soap" and "Hunting squirrels."*—About 1820 a Harvard student came to a country school in New England to teach during a term in order to earn some money to continue his college education. He introduced the "newfangled" subject of composition, which had never been taught in that school before. Taking his topics from his college rhetoric courses, he asked the older pupils to write compositions on such subjects as "Humility," "Virtue is its own reward," "Honesty is the best policy."

Great distress immediately resulted among the few pupils in the class. Susie was humble enough herself, but had no ideas on humility to express. She stared blankly ahead of her for a time, and then gave it up and cried. Tom fidgeted for a while, looked around to see what the others were doing, dug at his desk, but produced no ideas on humility or virtue or honesty. The subject of composition was a dismal failure, and the teacher abandoned it.

After "living around" in the neighborhood, however, for a week or so, he took a fresh start. "Susie," he said, on Monday morning, "when I passed your house on Saturday I saw you were making soap. You seemed to be having some trouble with it. What was the matter?" After a brief oral statement from Susie, he said, "That's interesting; suppose you write us an account of it." To the boy he said: "Tom, I saw you had a couple of squirrels when you came out of Smith's woods. How did you get them?" After a brief oral statement from Tom, the boy was asked to write the story of his squirrel hunt. With this change in the type of topics assigned for compositions, the subject changed from one of dismal, fruitless drudgery to one of great popularity. The reasons are easy to see. The pupils were now concerned with interesting topics from everyday life, con-

cerning which they were well informed, and they felt that the teacher was really interested in hearing about their experiences.

Change from abstract topics to telling of real, personal experiences.—This anecdote epitomizes the history of composition topics in American schools during the nineteenth century. Such abstract topics as were first used in this country school were common in nearly all schools up to 1890, and are still found in classes where the work is not adapted to pupils' experiences and modern social needs. For example, I recently read a first-year high-school composition entitled "Inspiration"—a dismal, halting, illogical, contentless production—written in 1920. It was refreshing to turn from it to a boy's lively account of his first experience in operating a well-known make of automobile.

Emphasis shifted from written to oral composition. *Pestalozzi's crude pioneer lessons.*—In elementary schools, however, below the sixth grade, practice in *written* communication now occupies a very small place in progressive schools compared with the practice in *oral* communication. The introduction of oral composition in elementary schools dates back to the time of Pestalozzi (1746–1827), the great Swiss educator who introduced many of the educational reforms that were adopted during the nineteenth century. In 1799, during a war between the French and other nations, a certain Swiss village named Stanz was devastated just as villages were in Belgium during the World War. A great horde of the orphaned children were gathered in a building and Pestalozzi was placed in charge. He was eager to teach them but had no adequate facilities, so he resorted largely to concert recitations in which they repeated after him things that he said. In a few months he moved to another poorly equipped elementary school and carried his crude but novel oral methods with him. We have the following description, by one of his pupils, of the oral language lessons of this school:

> The language exercises were the best thing we had, especially those on the wall paper of the schoolroom. . . . We spent hours before this old and torn paper, occupied in examining the number, form,

position, and color of the different designs, holes, and rents, and expressing our ideas in more and more enlarged sentences. Thus Pestalozzi would ask, "Boys, what do you see?"

Answer. A hole in the paper.

Pestalozzi. Very well, say after me: "I see a hole in the paper."

"I see a long hole in the paper."

"Through the hole I see the wall."

"Through the long, narrow hole I see the wall."

"I see figures on the paper."

"I see black figures on the paper."

"I see round black figures on the paper."

"I see a square yellow figure on the paper."

"By the side of the square yellow figure I see a round black one."

"The square figure is joined to the round figure by a large black stripe, etc." (**23**: 326)

Three Pestalozzian principles: clear ideas, increasing vocabulary, series of ideas.—Such pioneer lessons by Pestalozzi, while not as artistic as the best present-day teaching, exemplify three important principles in the teaching of primary oral composition.

1. *Clear ideas.*—The first principle is to make sure that pupils have clear ideas to express. In this case, as in the New England country-school example, the ideas are derived from real, personal experiences. In Pestalozzi's lessons actual objects from the schoolroom or objects observed during excursions were used to give the experiences.

2. *Increasing vocabulary.*—The second principle is steadily to build up the pupil's vocabulary. In Pestalozzi's lessons with his great horde of children this was done through imitative concert recitations. In this respect we shall find improvements upon his technique at the present day, but it is important to notice that such imitative repetition of language is really an effective method of increasing a learner's vocabulary. We shall notice below how this is done in a modern first-grade lesson on "The Three Billy Goats Gruff." Evidence of the efficiency of this method in aiding in increasing a person's speaking vocabulary

is found in the learning of a foreign language by a conversational method. In such cases, if the class is small, rapid concert repetition after the teacher is a most fruitful aid in giving pupils a ready command of an oral vocabulary.

3. *Keeping longer and longer series of ideas in mind.*—The third principle of Pestalozzi's method is to give practice in "expressing . . . ideas in more and more enlarged sentences" and series. You will notice that the first sentence in his lesson contains no adjectives, the second contains one adjective, the third is slightly more complex, and so on until the last sentence contains quite a complicated statement. Practice in keeping in mind longer and longer series of ideas is one big essential in training in oral composition. The importance of this factor appears strikingly in the composing of long addresses or even books by dictating them. Thus, one of my colleagues who is well known as one of the best educational speakers in the country owes a part of his skill to his ability to keep a long series of ideas clearly in mind. For example, with few notes, he dictated to a stenographer one of his most important books, working at it about three hours a morning for about three months. To do this he had to keep in mind practically the whole book. While such extreme skill is attained only with large native talent for oral expression, yet everyone who expresses himself orally must learn to keep in mind a number of points, and we see how Pestalozzi's crude primary lessons aimed to give young children practice in doing this by gradually enlarging the sentences which they used.

Descriptive narrative helps pupil to keep series of ideas in mind.—About 1840—that is, about forty years after Pestalozzi's lesson described above—Calvin E. Stowe of Ohio and Horace Mann of Massachusetts made separate visits to Europe and found Pestalozzian language lessons in vogue in several places. Stowe described one first-grade lesson as follows:

A boy has assigned to him for a lesson a description of the remarkable objects in certain directions from the schoolhouse, which is situated in Little Cathedral Street. He proceeds as follows:

"When I come out of the schoolhouse into Little Cathedral Street and turn to the right, I soon pass on my left hand the Maria Place, the Gymnasium, and the Anklam Gate. When I come out of Little Cathedral Street," etc. (**23**: 330)

In this lesson we see the practice in keeping a series of ideas in mind better exemplified than in the lesson on the hole in the wall paper. The nature of the topic—namely, "What I see as I walk down the street"—especially aids the pupil to keep the series of ideas in mind. Simple narratives of actual events and descriptions of objects in a fixed order are especially suited, then, to give this type of training.

Thus we see how the early pioneer lessons of Pestalozzi, as gradually improved upon by later educators, provided three of the technical essentials in training in elementary oral composition; namely, (1) clear ideas based on real experiences, (2) additions to the pupil's vocabulary, (3) practice in keeping in mind longer and longer series of ideas. In the next paragraph we shall see how the American observers of Pestalozzian lessons in Europe noted the large amount of training in oral expression that occurred in the more informal conversational lessons about natural phenomena.

Conversational methods train in conveying ideas.—After describing lessons which he observed, Horace Mann emphasized the value of such conversational object lessons for training in oral communication in the following words:

The method I have described necessarily leads to conversation, and conversation with an intelligent teacher secures several important objects. It communicates information. It brightens ideas before only dimly apprehended. . . . It teaches the child to use language, to frame sentences, to select words which convey his whole meaning, to avoid those which convey either more or less than he intends to express; in fine, it teaches him to seek for thoughts upon a subject and then to find appropriate language in which to clothe them. (**23**: 331)

Conversation lessons in geography etc. give pupils active technical vocabularies.—This paragraph describes what is still

one of the best forms of training in oral communication to be found even in the most progressive elementary schools; namely, the conversation and discussion lessons in the regular school subjects. Such lessons were described in our earlier chapters. For example, in the chapter on problem-solving we considered a second-grade class planning the costume for an Arab doll, a fifth-grade class discussing freely the development of London, and a seventh-grade class debating almost with the skill and vocabulary of educated adults the desirability of increasing America's sugar production.

In such discussions the child's stock of ideas is carried far beyond the realm of immediate experiences—of such objects as wall paper and city streets—to the realm of such distant phenomena as tidal rivers, marshy banks, docks, and factories in foreign lands, and such abstractions as millions of pounds of sugar, the number of growing-days required for sugar cane, competing crops, the tariff, etc. The pupil's vocabulary grows apace with his ideas. Moreover, it is not merely a reading vocabulary, but one that he has actively at his tongue's end as a result of practice in using it in the discussions.

Conclusion of discussion of Pestalozzi's oral training.—One element in skilled oral expression that is lacking in such conversational discussions is the keeping in mind of a *long* series of ideas which is to be expressed. This factor is best provided for by organizing in the content subjects "contribution recitations." Before turning to these, let us note that our historical study of the Pestalozzian methods has given us the following points: (1) Pestalozzi placed the emphasis upon training in *oral* communication instead of written; (2) in his training in oral expression he emphasized (*a*) clear ideas based on real experiences, (*b*) additions to the child's vocabulary, (*c*) practice in keeping in mind longer and longer series of ideas; (3) the conversational recitations which grew out of the Pestalozzian reforms give pupils fluent use of the technical vocabularies of all the elementary-school subjects.

Developments since Pestalozzi. Contribution recitations. *Give practice in presenting series of ideas to an audience.*—Two notable additions to the Pestalozzian training in oral expression were made toward the close of the nineteenth century. These were (1) the development of contribution recitations and (2) emphasis on the creation of real audience situations. In the contribution recitation a pupil contributes to the group's discussion of a topic an account of some related matter that he has especially studied. He may say only a few short sentences or he may talk two or three minutes. In such a case there is a real audience situation, consisting of (1) persons who are interested, or who are to be interested, in hearing about a certain matter; and (2) a speaker with new material to present to them. Such contribution recitations were introduced into elementary schools late in the nineteenth century, but did not receive much emphasis until improved school libraries made it possible for pupils to read different accounts of the topic under discussion.

Audience situations. *Create interest through appeal to instinct of communication.*—The emphasis on audience situations, as a desirable factor in practice in communication, became strong toward the close of the nineteenth century as a result of the increased knowledge of human instincts. Psychologists emphasized the instinct of communication as one of the strongest of human inborn tendencies. From the instinctive babbling of babies up to the most irrepressible senatorial oratory we find this tendency exemplified. Since it is such a powerful instinctive driving force, it is wise to utilize it in giving interest to school practice in expression and communication. This fact has been especially emphasized during the last twenty-five years (1895–1920) by such leaders in educational thought and practice as Professor John Dewey. Dewey well expressed the fundamental audience idea when he said, "Language is primarily a social thing, a means by which we give our experiences to others and get theirs in return." From this position it naturally follows that the proper basis for vital training in communication includes (1) the pupil

with some experience he desires to express, and (2) an audience that he feels is interested to learn of his experience.

Audience idea gradually winning a place in training in communication.—This is essentially the situation that the New England country-school teacher created when he inquired about Susie's soap-making and Tom's squirrel hunt and asked them to tell him about their experiences. Hence we see the idea of creating real audience situations is not new in methods of training in expression. Yet it took extensive efforts of psychologists and leading educators after the close of the nineteenth century to bring about its general adoption even in progressive schools, and it is still woefully absent in many schools where training in composition is the driest and least vital of subjects.

Audience situations also give basis for judging success of communication.—The establishment of real audience situations for practice in communicating ideas not only stimulates interest through appeal to the pupils' instinct of communication but also gives a natural basis for judging the effectiveness of each performance and for determining the specific needs for improvement. We found one example of this fact in the description (on pages 242–244) of the planning of an assembly exercise by a fifth-grade geography class. When one pupil suggested discussing "How Japan gained her colonies," the class debated whether this would be understood by the fourth-grade pupils in the assembly. Later, other proposals were rejected because they would "mix up" these fourth-graders. In general, under the guidance of the teacher these pupils kept asking themselves, "Will this material or this mode of presentation be clear to the audience? Will it be interesting? Will it give them the right impression?"

Pupil considers how audience is interested, instructed, and impressed.—This practice in keeping in mind the point of view and interests of the particular audience to whom the ideas are to be presented is one of the most important in successful training in communicating ideas. It is an indispensable addition to the

pupil's technique and skill in expression. A pupil may have the other three attainments which we have mentioned—namely, clear ideas, an adequate vocabulary, and skill in keeping a long series of ideas in mind—and yet absolutely bore his audience with a presentation unadapted to its understanding or interests. The person who speaks or writes glibly from his own point of view, but fails to get his message "over" to his audience—fails to interest, instruct, and impress his hearers or readers—is not successfully communicating ideas, although he may be expressing them. Hence, as we indicated in opening the chapter, we prefer the title "Practice in Communicating Ideas" to the title "Training in Expression," since the former places the emphasis upon what the listeners or readers get and how they are interested, informed, and impressed by the expressional efforts of the pupil.

Old-fashioned recitation develops callous indifference to audience effects.—Instead of developing an adequate regard for the audience effects that are being produced, some of the methods of recitation that are used in the old-fashioned school so dull the pupil's feeling for these effects that he tends to disregard them altogether. This may frequently be the case in the ordinary recitations, in which each pupil recites material that all the other members of the class have studied in common. The consequent lack of any natural audience stimulus in such a situation is reflected in the listless, inattentive attitude of the other pupils and in the indifference of the speaker, who is concerned merely to show that he knows the assignment. If instead of such a situation the pupil is required to present new material or a new interpretation of old material in such a manner as to interest, instruct, and impress his audience, not only will the whole spirit of the classroom be changed but the pupil will be developing skill in judging his own expressional efforts, and the crop of irrepressible bores who inflict their uninteresting messages upon the world may be reduced.

Conclusion of Section I. Principles derived. *Audience situations, clear ideas, vocabulary, series of ideas, audience*

effects.—In this section we chose to introduce our subject by a review of the principles of training in communication as these have developed historically in modern elementary schools. We did this (1) because of the obvious progress shown in some of the early sample lessons; (2) because of the early emphasis on *oral* composition by Pestalozzi; and (3) because of the clearness with which the fundamental principles of training in communication stand out in the historical discussion. These principles may be summarized now in somewhat inverted order, as follows:

I. The first essential in vital training in communication is to create real audience situations consisting of (1) the pupil, with some experience he desires to express; and (2) an audience that he feels is interested, or can be interested, in learning of his experience.

II. In order that the pupil may grow in his ability to communicate ideas, the teacher should (1) make sure he has clear ideas, (2) build up his vocabulary, (3) train him in keeping in mind longer and longer series of ideas, and (4) stimulate him to judge and improve the audience effects which he produces.

Transition to Section II, on oral communication.—With these essential principles of training in communication derived from our historical approach, we shall now turn to a special section on *oral* communication, in which it will become clear why we have given so much emphasis in this section to oral practice.

Section II. Practice in Oral Communication

Social importance. Oral expression more frequently used by most persons.—Oral communication was given such a prominent place in the preceding section because it is socially much more frequent and important in the lives of most persons than their written expression. The most frequent occasions for oral communication will be listed below and briefly evaluated.

Social occasions and values. 1. *Conversations. Learning to be a good conversationalist.*—Ordinary conversations present the

most common opportunities for oral communication. Practically all persons, except infants, engage in them daily. To be skilled in conversation is very highly esteemed. Such skill depends upon abundance of ideas of general interest, a corresponding vocabulary, and easy use of these factors in oral communication. The liberal contact with contemporary social life which a progressive elementary school now gives, and the conversational lessons which prevail, when provided together, are most effective devices in training good conversationalists.

2. *Practical oral discussions; explanatory, problematic, argumentative, persuasive.*—Next to leisure conversation, practical discussions between two or more persons appear most frequently in oral communication. These may occur in the family, in business, and in the affairs of such organizations as clubs, churches, charitable institutions, etc. Telephone discussions of business are common examples. Committee meetings call for skill in practical oral discussion. The discussions may be of various types. Explanatory discussions occur frequently; for example, a business executive is discussing with a subordinate plans which the former has in mind. The subordinate listens, asks questions, makes suggestions, and tries to get the matter clear through discussion before leaving the office. Problematic discussions are another type and are well illustrated in committee meetings. Argumentative discussions—that is, rapid, informal give-and-take between disputants—occur on all kinds of practical occasions. Persuasive discussions are particularly important in the work of traveling salesmen, insurance solicitors, etc. In family affairs, love affairs, and other types of social relations skill in oral persuasion is a great asset. The problematic discussions which are provided in problem-solving lessons are especially helpful in developing this socially valuable skill in oral discussion.

3. *Dictating business letters.*—It is a significant fact for the schools that most of the "writing" of business letters is now a matter of oral expression by the person who composes the letter. Nearly all business correspondence is dictated. Such dictation

calls for a very different form of skill from what is required in actually writing letters. My own experience was very striking. Some years ago I was placed in an executive office where I had, for the first time, to dictate letters. I had been a very fluent writer of personal letters for years and had written even a five-hundred-page book without much trouble. Yet it was over two years before I developed sufficient skill in dictating long business letters to do so without elaborate outlines or memoranda. My previous training had not fitted me to keep such an outline of main and subordinate points clearly in mind while talking. Thus we see that practice in keeping in mind a series of ideas to be expressed orally (which we emphasized in Section I) is especially needed in training for one of the most common forms of oral expression in modern life; namely, dictating business letters.

4. *Short talks.*—Occasionally persons are called upon to give short talks. Sometimes these are impromptu, as in certain religious services or in meetings of deliberative bodies where the speaker secures the floor for a few minutes. Often the talks are prepared in advance, either in outline form or carefully written out. The art of the short talk calls for special study. The failure of many banquet and college-chapel speakers to realize the artistic limits of the short talk gives evidence of the need for occasional training in school in this occasional form of oral communication.

Social frequency of such occasions for oral communication justifies special emphasis.—These four types of oral expression —namely, leisure conversations, practical discussions, dictated business letters, and short talks—include the most common examples of oral communication in social life. The first three are so frequent as to justify very extensive practice in similar oral expression in school. They are so much more common than written communication in the lives of most persons as to justify us in giving comparatively little training in written as compared with oral communication.

Child's easy use of oral language justifies emphasis.—Further justification for placing special stress upon training in oral communication in the elementary school is found in the difficulties that young children have with handwriting. Not until the higher grades are reached do children have sufficient control of handwriting to enable them to express their thoughts fluently and easily in writing. On the other hand, from the first days in the kindergarten, pupils can be given practice in oral expression without any such hindrance as we encounter in written expression. Thus we find additional reasons, from the maturing of pupils' abilities, to supplement the social reasons for emphasizing oral communication which we presented in the preceding paragraphs.

Sample lessons in oral communication. The kinds of activities in a progressive elementary school which give practice in oral communication are so numerous and varied that we have not space to introduce the reader to all of them. The best we can do is to indicate a few types and examples, as follows:

1. **Discussion lessons especially valuable.**—As indicated before, the conversation or discussion lessons which prevail in history, geography, science, art, etc. are especially effective in giving pupils a wealth of ideas, as well as the necessary vocabulary and practice in expressing them. For sample lessons of this type see pages 279–306.

2. **Contribution recitations require longer sequences.**—The contribution recitation usually gives the expresser practice in keeping in mind a longer series of ideas to be expressed than is the case in conversation lessons. For a sample contribution talk by a pupil see the talk on steamships printed later in this chapter (p. 443).

3. **Telling after silent reading; active vocabulary.**—Telling portions of a story or other assignment after silent reading of it gives excellent practice in oral expression. In the second-grade reading lesson on page 122 we noticed how the pupils, after silent reading of the story, told with ease and accuracy about

the crocodile's plan to catch the monkey. It is remarkable how rapidly a child's active speaking vocabulary improves through such practice. He quickly learns to use the nicer descriptive terms and turns of expression which occur in the books, but which the ordinary converse of the street and home does not make a part of his vocabulary. The exercises in silent reading in the higher grades, which we described in Chapter XI and which call for reproduction of portions of the matter read, also enlarge the pupil's vocabulary and habituate him to expressing himself in clearly formulated points. The difference between such oral reproduction and mere oral reading is tremendous from the standpoint of training in oral expression. In oral reading the reader merely speaks words which he sees printed on the page. He does not have to hold a series of ideas in mind or find words to express them. But in the oral reproduction of selected points he must recall the points in order and recollect appropriate words to express them. This is real training in oral expression. Unfortunately it frequently lacks a real audience situation, but its value in increasing the pupil's vocabulary is so great as to justify its frequent use.

4. **Special expression periods.**—Finally we may note a few of the devices used during the special periods set apart in the programs for training in oral communication. We shall begin with the kindergarten.

a. Kindergarten. Telling of toys.—A favorite device used for the special conversation periods in a kindergarten is to have a child bring from home some favorite toy, show it to the class, and say a few words about it. Naturally some of the five-year-olds are so timid they can say nothing. A somewhat less timid child might hold up her doll and say, "This is my doll." A still less timid child might say: "This is my doll. Her name is Mary." A little natural-born talker whom I know would probably say: "This is my doll. Her name is Mary. Santa Claus brought her. I found her under the Christmas tree. Mamma said, 'What are you going to call your new dolly?' I said—" and so on until

the teacher has to resort to some artful device to put a stop to the child's endless flow of ideas and words.

Coöperative descriptions of activities.—Another favorite kindergarten device is for the pupils to coöperate in building up a story of something they have done. Here is a sample from The University of Chicago Elementary School:

OUR VISIT TO THE BIRD STORE

We went to the bird store to buy some goldfish.
We saw canary birds.
They said, "Cheep, cheep, cheep."
We saw some rabbits.
We saw a stuffed squirrel on a part of a branch.
We saw a stuffed parrot on the trunk of a tree.
We saw some empty cages and some little cages.
We bought four fish and some seaweed and some fish food.

The children composed the sentences in this story; the teacher wrote them down; then the children practiced telling them. Thus the pupils secure elementary practice in organizing a simple series of ideas and keeping them in mind while telling them. They also gain in confidence through the concert recitations with others and through the individual telling of a single line or of the whole story. Numerous natural occasions for the repetition arise out of the class activities with the story. For example, they may make little books containing the story and pretend to read them.

b. First grade. Learning, telling, and dramatizing a story.—The types of training described for the kindergarten continue into the first grade, but for variety of illustration we shall present here the plans of a teacher for training first-grade pupils in relating the story of "The Three Billy Goats Gruff." The large amount of repetition which occurs in these lessons might seem tiresome to one unfamiliar with the tastes of first-grade children. The delight which they take in repetition I saw illustrated in the case of my little nephew and niece, who possessed a phono-

graph record of "The Three Billy Goats Gruff." Day after day, time and again, they placed the record on the machine and listened with undiminished delight to the adventures and conversations of the troll and the three goats. An account of the method of teaching children to tell and dramatize this story is given below. It was written by Miss Mattie L. Hatcher and is reprinted with her permission.

TEACHING "THE THREE BILLY GOATS GRUFF" TO A FIRST GRADE. By MATTIE L. HATCHER

First Lesson

Teacher's aim: So to tell the story that the children's attention will be gripped, their imagination quickened, and their interest sustained to the end.

Method. "How many of you have ever seen a billy goat? . . . How many of you have one at home? . . . What can yours do? [Free expression.] Do you think he is very bright? . . . I know a story about three billy goats, who were very interesting. Should you like to hear the story? Listen while I tell it. [Teacher tells the story with dramatic effect and without comment.] What do you think of these goats? [Free expression.] See if you can tell the story to your mothers when you go home."

Second Lesson

Teacher's aim: To clear up obscure points in the minds of the children and to assist them in getting a more definite idea of the story.

Method: "You remember the story we had the other day about the three billy goats. What were these billy goats named? . . . Where did they go? . . . Who tried to keep them from going? . . . Some of you have seen billy goats, but some of you have not. I am sorry that I cannot show you a live one. I haven't any, but here are some pictures of billy goats. [Teacher shows several pictures.] Should you like to hear the story again? I shall tell it if you help me." [Teacher tells the story, assisted by children.]

Teacher. Once upon a time there were—

Children. Three billy goats [etc.]

T. Under the bridge there lived—

C. A great troll.

T. What is a bridge? . . . Where is there one near here? . . . This is the picture of a bridge—another picture. I am sure you never saw a troll—they do not live now. We can only think how they looked. This troll had eyes—

C. As large as saucers.

T. And a nose—

C. As long as your arm.

T. Shut your eyes and think of a troll that looked like that. Think of him as under the bridge. I am sure we should be afraid to cross that bridge, but these little goats were not afraid. Help me to tell what Little Gruff did; Middle Gruff [and so on until the entire story has been retold by teacher and children].

Third Lesson

Teacher's aim: To induce the children to think through the story, putting incidents in their chronological order.

Method: "We know the story of the three billy goats so well that today we shall try to tell it and not leave out anything. How does the story begin? [Once upon a time there were three billy goats.] Where were the billy goats? . . . Where did they want to go? . . . What was the trouble they were likely to have in getting there? . . . Which billy goat went first? . . . Tell what the troll said to him, and what he said to the troll. . . . Tell about the next billy goat. . . . What comes next in the story? . . . Tell about it. . . . What are the billy goats doing when the story ends? . . . "

Fourth Lesson

Teacher's aim: To lead the children to dramatize the story.

Method: "We shall play one of our little stories today. Which one do you want? [This story will be selected at some time. The teacher can afford to let it wait until the children want to play it.] I am sure that we know the story of the Billy Goats Gruff well enough to play it today. What must we have? [Children will probably name the three billy goats and the troll.] We shall need something else besides animals. [Children will probably mention bridge, hill, and lowland.] Where shall we have the hill? . . . What can we

have for the bridge? . . . Where shall be the plain where the billy goats were first eating? [Children arrange details. Actors may be selected (1) by the teacher, (2) by a leader, or (3) they may be volunteers. Several sets of children may play the parts before the period ends.] Remember where the goats are at first, where they are to go, and exactly what they are to say. Take places" etc.

Fifth Lesson

Teacher's aim: To lead the children to tell the story with attention to order of events, in good language, and with vivid interest.

Method: "I wonder if we can tell the story of the Billy Goats Gruff today. Tell of the three goats, what they were doing, and what they thought they would like to do, John."

"Tell of the trouble they were likely to have in getting to the mountain and what Little Gruff did, Mary."

"Tell what Middle Gruff did, Edward."

"Tell what Big Gruff did, and how the story ends, Anna."

"Tell the whole story, Edith."

Sixth Lesson

Teacher's aim: To allow the class to give free expression to the story.

Method: "What story do you want today? . . . Shall we tell it or play it?" [Children volunteer to tell or play it. Children arrange all details etc.]

Suggestions

1. Tell some stories to the children without expecting any response from them other than the light upon their faces.
2. Often let the children volunteer to tell stories.
3. Often let them select the stories to tell or to be told.
4. Let the story-teller face the audience and try to interest them.
5. The audience should be free to clap or to show approval in any way if the story is pleasing to them.
6. The audience should be encouraged to ask questions at the close of the story.
7. The teacher in her favorable comment may take occasion to call attention to something which she is emphasizing with the class; for example: "We enjoyed Ben's story. He spoke so clearly."

8. The teacher should draw the class as closely around her as possible.

9. A good story will stand many repetitions.

10. An uninteresting story should not be repeated.

11. Never forget that literature should give joy. (2: 525–528)

c. Composing plays and assembly exercises.—A favorite device for giving practice in oral discussion and composition is to have pupils compose a play from some story which has appeared in their history or other reading. For example, here is the foreword to a play entitled "David and Goliath," composed by the second grade in The University of Chicago Elementary School and printed by the upper-grade children in the school's print shop.

FOREWORD

The story of David and Goliath was told to the second grade in connection with the study of shepherd life. It was then dramatized, the children at first working out the scenes and using their own words to express the thought. Later the words were taken directly from the Bible.

The children planned the costumes and made their own shields, swords, spears, and helmets. From pictures and descriptions they were able to weave David's sling.

Third grade. Æsop's stories dramatized.—On the opposite page is reproduced a play written by the third and printed by the seventh grade. The foreword reads thus:

FOREWORD

These short plays were written and illustrated for the pupils of the second grade by their friends in the third grade. They are favorite fables from Æsop, made into dramas easy and short enough to be played as they are read. The pictures are to help in showing the players what to do and how to do it.

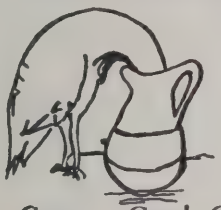
Other plays composed: "Horatius," "Robin Hood," "Rip Van Winkle."—Other examples of classes composing plays from literary or historical materials are the following: A fourth-grade

Action. The crow flies around.

Crow. Caw! I am so thirsty.
Where shall I get a drink?

Action. The crow looks around for water.
He sees a pitcher.

Crow. Oh, there may be water in this.



Action. He puts his head into the pitcher.
He tries to reach the water.
He cannot.

Crow. Caw! Caw! I cannot reach it.

Action. He tries to tip the pitcher over. He can not.
He puts his head to one side.

Crow. What shall I do?

Action. He sees some small stones.

Crow. Caw! Caw! I have an idea.

Action. He picks up a stone.
He drops it into the pitcher.
He puts in stone after stone.
The water rises to the top.

The crow drinks the water.

Crow. Caw! Caw! I've had a good drink.

Action. He walks away.

Courtesy of The University of Chicago Elementary School

PLAY ENTITLED "THE CROW AND THE PITCHER"

class dramatized portions of Macaulay's "Horatius." They devised a number of tableaux representing crucial points in the story. Before the curtain arose for each tableau, a child appeared and recited the appropriate lines from the poem. The devising of the tableaux, the selecting of the portions of the poem to be used, and the choosing of the actors called for much oral discussion. The presentation of the whole before the school assembly helped to develop confidence before a large audience. Other simple plays were devised by a sixth grade from Howard Pyle's "Robin Hood" and from the story of Rip Van Winkle. In case the original story contains much conversation, it is easy for the pupils to compose the dialogue. Frequently, however, they must invent the dialogue as a substitute for narrative or descriptive matter in the text. This calls for much discussion and experimentation with different forms of expression.

Sample class discussion during preparation of assembly exercise.—In order to give the beginning teacher some notion of the method of thus training pupils in practical discussion through the planning of a play or of some exercise to be presented to the school assembly, there is printed below a partial stenographic report of the discussion held by a fourth-grade class in the Francis W. Parker School of Chicago while preparing an assembly exercise on the poet and artist William Blake. After the class had discussed the desirability of preparing the exercise, the conversation continued as follows:

Robert G. If it is just going to be Blake's poems, I think we should tell something about him.

Teacher. How many like that idea? (Many hands are raised.) What things shall we tell about him?

(Teacher writes topics on the board as they are suggested.)

1 Child. Where he was born.

2 Child. What he was interested in.

3 Child. His visions.

T. What visions?

1 Child. When he saw the child in the cloud.

2 Child. The tree full of angels.

3 Child. Fairy's funeral.

4 Child. The men he saw go to the altar—the Apostles.

Miriam. One time he was sitting on the seashore and saw the kings and all the pages and the people going along the shore.

Karl. And once when his father died he thought he saw his soul go up to heaven.

Mary. How he came to write his poems and how he learned to engrave.

Charles. You would not call it sculpture if he engraved things.

T. Who will set Charles right?

Charles. A sculptor makes statues from marble, and an engraver carves great stones.

T. No.

Alexander. They have copper plates, and with a sharp tool do what they want to on this, and then fill the lines with ink and press it down on paper or whatever they are going to put it on.

T. What other points do we want about Blake?

Child. How he used to go to Westminster Abbey and draw statues.

T. Should you like to have someone who knows about his drawings tell about them at the exercise? You don't know his drawings. They are strange and weird. I have seen some of them, and maybe someone has seen a whole book of them.

All. Yes.

T. I will try to find someone who knows about them.

Child. Should we not tell about the wife who did not know anything, and he taught her, and then she helped him with all his things; and the name of his first book, "Songs of Innocence," and why he named it that?

T. And about the long walks that he and his wife took together?

(No more points are suggested.)

T. What poems do you know of Blake?

Children. "Laughing Song"; introduction to "Songs of Innocence"; "Night"; "The Lamb"; "The Tiger"; "The Shepherd."

Child. Can't we sing "The Shepherd" at the beginning of the exercise?

T. What grade can sing it?

All. We can.

Further planning and discussion followed, and certain children volunteered to prepare to talk upon the various topics outlined on the board. The next day the lesson proceeded as follows:

[On the board is the list of points planned the day before, with names of children volunteering to talk on each topic.]

Teacher. Yesterday we began to plan our morning exercise about Blake. Without my saying anything, let the children come in the order in which their names appear on the board. And remember that you must connect with one another, so the story will be complete.

René. This is going to be a morning exercise about William Blake. I am going to tell you when he was born and when he died. William Blake was born in London in 1757 and died in 1827.

Mary. When Blake was a little boy he loved to draw and used to illustrate his own poems. He went to Westminster Abbey and drew different things around there. He drew all his life, and did most of his drawing before he was married, but after he was married he kept it up and illustrated the rest of his poems.

Frederick. Blake's wife did not know how to read and write, so he taught her, and it was hard for him because he did not know very well either. He loved to live out of doors, and they took long walks and sometimes went thirty miles. They would stop at an inn, and then go back to their home at night.

Frances. When Blake was a little boy he never went to school, but learned by himself. When he was twenty-five years old he married Catherine Boucher. Though she was very talented she could neither read nor write, but he taught her.

Henry. William Blake was a very good man, and some things were very queer about him. I think these are true. He had quite a number of visions. Once he was at the seashore and thought he saw a lot of kings and queens marching along the sand. Another time, when his brother was very ill and died, he thought he saw his soul clapping his hands and going up to heaven. When he was a little boy and was going through a field, he thought he saw a tree full of angels, and he thought the reason he could make poetry was because his brother's soul used to come down and tell him what to write.

After four other children had spoken, a critical discussion of their performances began with the following conversation:

Teacher. What do you think? Does that do what you want done for the story? I am not asking you to choose the people who seem to you to do it best, but whether you think it is right for the story of Blake's life. Or are there things left out, or is it not pleasant the way it is planned?

Child. I don't like the way some of them said he saw his brother's soul clapping his hands.

T. But that is what Blake said.

Robert G. I think someone ought to tell about his engraving.

Mary. I thought you only wanted the drawing. I can change it.

T. It is not true, Mary, that he did most of his drawing before he was married. He went on all his life. All the famous book drawings he made later in life. And, Fred, you gave me the impression that Blake did not know very much.

Frederick. Well, he did not go to school, did he?

T. No; but he studied and was an educated man.

Frances. He said he got his education from reading. He read all the time.

T. What do you think about what René had to say, John? [René had been the first to speak.]

John. I don't think it was quite enough.

Child. I think he ought to tell more dates—when he started engraving and some things.

T. How many were interested in what René said? (A few hands are raised.) How many were not? (Many hands are raised.) Why was it that what he said was not interesting? (1)

This critical discussion, with further planning, continued on the second day until satisfactory schemes were devised. On the third and fourth days the aspiring performers were further tried out in the classroom. Finally, the children who were chosen to present the exercise to the morning assembly of the school rehearsed once in the assembly hall.

Simple dramatizings develop skill in discussion and audience presence; oratoricals avoided.—This account should impress the reader with the fact that in our discussion of the organization of dramatic activities we are not especially interested in making dramatic actors of the children. Our chief interest cen-

ters in the training in practical oral discussion which is illustrated in the above reproduction of the actual words of teacher and pupils. To be sure, the pupils who act or speak in the performance are securing valuable practice in talking to audiences. The skill which they develop in this line is quite remarkable if they have occasional opportunities from the kindergarten to the end of the elementary school. At the end of such training many of the children are thoroughly self-possessed in appearing before an audience of two hundred children and adults. They speak in an informal, natural, conversational manner that is in pleasing contrast with the declamatory efforts characteristic of the old-fashioned elocutionary training in memorizing classical orations. Such happy naturalness results from the whole course of training, beginning with such simple little plays as "The Crow and the Pitcher" (which we reproduced on page 417), and ending with such an elaborate historical dramatization as the reproduction in miniature, by seventh-grade children, of all the important debates concerning slavery, as these occurred in American national assemblies, from those of the Revolutionary period down to the Civil War.

d. Current-events club trains in parliamentary discussion of topics of the day.—Another valuable special device for training pupils in oral discussion is the organization of a current-events club. My son was in such a club in the sixth grade. The English teacher initiated the organization and set apart one period a week for its discussions. The class elected a chairman and secretary for short periods. The first secretary had seen parliamentary bodies in the motion pictures, but never in real life. When told that he had to keep the minutes, he asked for the gavel. When the teacher asked what he wanted it for, he said, "Why, to pound out the minutes." He thought "keeping the minutes" meant to time each speaker, pound at the end of each minute, and make a record of the time consumed. Needless to say, all the class acquired much clearer notions of parliamentary procedure before the club had completed many sessions.

The topics for discussion by the club were suggested by the children themselves. They included the following: "Street-car fares in Chicago," "President Wilson," "Distinguished foreign visitors," "Other prominent people," "The steel strike," "The high cost of living," etc. Each pupil had to bring for each meeting one or more newspaper clippings about his topic, with a brief unified paragraph written by him about a single phase of it. In the meeting he had to speak on his topic when the chairman called on him. When my son had his turn as chairman he was in great glee, because he could call on himself when he was well prepared, and did not have to fear a surprise attack. However, the club had a rule that upon a motion properly seconded and voted, the chairman would have to report. Free discussion, including questions and arguments, could follow each topic. Occasionally these discussions lasted fifteen minutes and became quite as tangled as those of the American Senate.

Conclusion of discussion of devices for oral practice.—The examples which we have given above will probably suffice to give the reader some notion of the great variety of methods used in progressive schools to give pupils vital, continuous, daily training in practical oral communication. As indicated above, for this purpose we esteem most highly the regular daily lessons in history, geography, science, etc., which are conducted by the discussion and contribution methods. Silent reading that is followed by oral reproduction of selected points also contributes daily to build up the pupil's vocabulary and his ability to hold a series of ideas in mind and express them clearly. In addition to these activities in various subjects, we have described special devices used during the period specifically devoted to training in oral expression. These include telling about toys which the pupils have brought in the kindergarten, coöperative descriptions of class activities in the primary grades, repetitional story-telling in the first grade, the discussion and composing of plays and assembly exercises in all grades, a current-events club in the upper grades, etc.

Resulting effectiveness of pupil's oral communication.—Where such constant training is provided in a progressive elementary school, the resulting ease, versatility, and effectiveness attained in oral communication are always noted by visitors who are familiar only with the old-fashioned or conservative elementary school, in which little free discussion by pupils occurred but in which stilted written composition prevailed. In the next section of the chapter we shall treat briefly of written expression, which, owing to its less frequent use by most persons and the difficulty of training young children in it, deserves much less emphasis than does oral expression in elementary schools.

Section III. Practice in Written Communication

Social need. *Restricted with most people to letter-writing.*—The writing of personal and business letters (unless these are dictated) is practically the only form of written communication that will be used frequently by most elementary pupils after they leave school. However, such writing is so common and offers such large opportunities for improvement that we are justified in giving pupils considerable practice in the art.

Letter-writing. Cleverly organized in progressive textbooks.—The more recent improved textbooks in composition have given much space to helpful exercises for training pupils in letter-writing. For example, in one text[1] that I have at hand, the first lesson on letter-writing opens with an anecdote of a little girl, Lily, who wrote a letter to the great author Dickens, whom she knew very well, asking him to come and read a story to her. The author's letter in reply is printed in the text. After some discussion of this interesting incident and model letter, each pupil writes a letter to the teacher, asking that school be dismissed so that the children can attend the circus.

[1] Potter, Jeschke, and Gillet, Oral and Written English, Book One. (Ginn and Company, 1917.)

Self-active comparison of pupil letters with model letter.—This exercise is followed by two pages of discussion in which each child is asked to compare in detail his letter with that of Dickens. This discussion opens as follows:

17. LETTER-WRITING

Oral exercise. Refer to the letter in the preceding section. Where did Dickens live when he wrote to Lily, and when did he write?

Examine the letter which you wrote to your teacher. Does it name the city and state in which you live? Does it tell the date of your writing? It should give the reader all this information. Besides, it is well for your letter to tell on what street you live and the number of your house.

This part of a letter, which tells where the letter was written and when, is called the *heading*.

Refer to the letter in the preceding section to see just where and how the heading should be written.

After considerable further discussion of this type, each pupil is asked to write an answer to his request that school be dismissed for the circus. The text says: "As if you were the teacher, explain in your answer why it seems best not to dismiss school. Or shall you grant the request, so that the children may all go to the circus?"

Group exercises suggested in teacher's manual.—At this point in the book the teacher is referred to the following suggestions in the teachers' manual that accompanies the text:

It may be that a group exercise in letter-writing, reviewing the matter contained in section 17, will prove profitable at this point. Throughout the book, group exercises should be used continually for review purposes. Vital reviews [consisting of group discussions or group corrections of compositions recently written] are much to be preferred to formal reviews of rules and definitions unrelated to the pupils' speaking and writing.

Letters about fairy-tale writer follow oral preparation.—The next lesson in the text is based on a two-page account of the life

of Hans Christian Andersen, the writer of popular fairy stories. This is made the basis of an oral exercise in which the following directions are given:

Oral exercise. Tell the story of the life of Hans Christian Andersen as he might have told it to you and your classmates if you had all visited him in his home near Copenhagen. Or, if you have read some of his famous fairy tales, tell the one you like best.

Then comes another exercise in letter-writing. This is based on the Andersen material and grows naturally out of the preparatory oral exercise.

Continued-story letters of imaginary children.—These initial lessons on letter-writing cover about five pages of the text and are followed by a series of lessons distributed at intervals throughout the book. This series concerns the correspondence between an imaginary girl and boy who live in California and a girl and boy who live in Michigan. The first lesson of this series begins as follows:

33. LETTER-WRITING

Oral exercise. Elizabeth is at her desk, trying to write a letter to her friend Harriet in California. But, although she is fond of Harriet and wants to send her a pleasant letter, she says she can think of nothing to say. Give her some suggestions. Possibly the difference in the climate between California and Elizabeth's home would make a good starting-point. Then she could tell of games she had been playing, of books she had been reading, of something interesting that has recently happened in the neighborhood. What other subjects could she write about in her letter? Make the brightest suggestion you can.

Written exercise. Write Elizabeth's letter for her, addressing the envelope when you have finished.

Features of a good textbook on letter-writing.—These quotations illustrate the clever organization of practice exercises in letter-writing as found in one textbook for the intermediate grades. Equally ingenious devices can be found in some of the other recent improved texts. In general, these devices have the following characteristics:

1. The text is addressed to the pupil in just such simple language as a skilled teacher would use in the classroom.

2. The discussion centers in interesting content such as a trip to the circus, or a little girl writing to a great author, or popular fairy tales and their author, or imaginary children whose books and games and travels and adventures in breaking through the ice, etc. savor of the real matters of child life.

3. This content is made the subject of practice in oral discussion preliminary to letter-writing.

4. The greatest difficulty of untrained letter-writers—namely, "knowing what to say"—is alleviated considerably by this oral preparation and by other means of suggesting phases of the topic which the pupils might treat.

5. Individuality and freedom of choice are encouraged in capable writers by inviting varied treatments and bright suggestions.

6. The formal rules of letter-writing are introduced by questions which stimulate the pupil to discover the conventional practices by examining samples printed in the book.

7. The pupil is made clearly aware of the place of these conventions in his own writing by means of questions which stimulate him to examine his own productions carefully and compare them with good models.

8. Group discussions and group corrections of pupils' letters, which are written on the board or read to the class, serve to bring out, emphasize, and review the general principles of letter-writing.

Four phases of practice in letter-writing.—If we now turn to a more systematic discussion of practice in letter-writing, we may, for convenience, distinguish four phases of the training; namely, training in (1) the use of conventional forms of address, (2) correct capitalization and punctuation, (3) the correct formation of sentences, and (4) securing interesting content and an effective style. We shall take up each of these for brief comment.

1. **Conventional forms of address.**—In order to give practice in the first of these phases of the art of letter-writing, it is probably best to follow rather closely the directions given in a good elementary textbook in composition or in the syllabus especially issued by the local schools for training in letter-writing. The conventional forms are so well standardized as to need little discussion here. The main points in teaching are (1) to arouse the pupil's interest in correct address; (2) to give him clear ideas of the conventional forms; and (3) to give much practice in which attentive repetition prevails so as to make the pupil's use of the conventional forms automatic. With such teaching, most of the pupils will be perfected in these simple formalities by the time they leave the eighth grade.

2. **Correct capitalization and punctuation.**—In teaching correct capitalization and punctuation the same general principles apply as are given in the preceding paragraph, on teaching the correct forms of address.

3. **Correct formation of sentences.**—The third phase of training in letter-writing—learning to form sentences correctly—is much more complex than the first two phases. We may introduce the problem of developing skill in this phase by a quotation from the Boston bulletin entitled "Determining the Achievements of Pupils in Letter-Writing." The discussion of developing the pupil's "sentence sense" reads as follows:

SPECIAL STUDY OF SENTENCE SENSE

Much has been said and written about the need of developing in the children "sentence sense," and, indeed, the need is vital. A sentence, no matter what may be its length and complexity, must contain a subject and a predicate and must not be grammatically dependent on any words outside itself. If a child has gained the ability to distinguish both in his mind and on paper a sentence as a unit of thought, then he has gone a long way toward enabling his reader to grasp and follow the thoughts which he wishes to communicate.

There are two principal types of violation of "sentence sense": (I) the incomplete sentence and (II) the failure to make a new sentence for a new thought.

Under (I), the incomplete sentence, we may distinguish the following types:

1. Subject omitted:
   a. Hope you are well.
   b. The pieces you spoke were very interesting and am glad to know you did well.
   c. And as for the pains in your side are only growing pains.
2. Whole or part of verb omitted:
   a. I suppose the piece that was entitled "The Death of Pyramus."
   b. Your letter received.
   c. I am feeling very well and also the family.
   d. I hope you will be well after this and no more pains.
3. No subject or predicate:
   a. Noun phrase used as sentence:
      (1) *Just a few lines to answer your letter.*
      (2) *Best regards to all from all.*[1]
      (3) *That pain also* (*following the sentence "I hope your nose is better"*).
   b. Subordinate clause standing alone:
      (1) *Because I want to see you.*
      (2) *Which I am certain are not better than yours.*
      (These are really parts of foregoing sentences.)
   c. Participial phrase used as sentence (chiefly at end of letter):
      Hoping to see you Saturday (wrong, even if followed by comma, unless also followed by *I am* or *I remain*).
   d. Prepositional phrases standing as sentences:
      (1) *With love.*[1]
      (2) *In reply to your letter which I received yesterday.*

Under (II), the failure to make a new sentence for a new thought, attention is called to the following groups:

[1]It is recognized that this use of an incomplete sentence is not to be judged so harshly as the other examples noted. But while it is true that cultured people sometimes allow themselves the privilege of using this construction at the end of a friendly letter, nevertheless it should be discouraged in letter-writing in school in order that the children may not extend its use to other types of written work.

1. Independent clauses joined as one at the end of the letter.
   a. Give my love to everybody, I am.
   b. Write soon, I am.
2. Independent clauses, not related in thought, joined without connective:
   a. I am glad to say you have been honored good and I hope you also feel that way too, I hope your nose will not be bleeding as much as it did before, because sometimes I have them, but mostly I have them in the summer.
   b. I hope you will come home soon and help with the garden the baby is well and all the family but mother.
   c. I hope you will not have any nosebleeds also I am sorry your side has pained.

This classification is admittedly incomplete. As can be seen, only the major violations of sentence structure are included here. All the examples are taken from pupils' letters. (**15**: 25–27)

Frequency of error and possibilities of improvement shown.—The extent to which such errors in sentence structure existed among Boston school children was ascertained from a series of tests. The conclusions of the Boston authorities are stated in the following quotation:

> These figures show that gross violations of sentence structure exist to an alarming extent in the pupils' writing. In other words, about one in three of the pupils in Grades VIII and VII (36 per cent and 38.2 per cent respectively) and about every other pupil in Grade VI (46.5 per cent) made one or more of the kinds of error in sentence structure listed above. This certainly would indicate a need for work in developing "sentence sense." It is only fair to add that these pupils were by no means evenly distributed among classes, for while there were as many as 61 per cent of one class who had errors of this kind, there were as few as 19 per cent of another class in the same district who had errors in sentence structure, showing that some teachers have been more successful in attacking the problem than others. It seems to indicate, too, that a large part of the error is unnecessary. (**15**: 28)

Follow a good text and adapt Herbartian formal steps.—It is probably advisable in teaching this phase of letter-writing to follow one of the best recent texts in which the lessons are based

upon scientific investigations of pupils' errors (such as the Boston study) and are carefully graded and systematically arranged. In introducing pupils to each correct form and giving them practice in using it, some adaptation of the Herbartian formal steps is probably desirable—similar, perhaps, to the procedure which we described on pages 155–156, in the case of arithmetic.

4. **Securing effective content and style.**—The fourth phase of the art of letter-writing—securing interesting content and an effective style—is far more difficult to develop in many pupils than the other three phases which we have discussed; namely, (1) correct address, (2) correct capitalization and punctuation, and (3) correct sentence structure. Since these three involve primarily a limited number of formal rules and formal habits, they present a somewhat definite, limited task for the teacher. On the other hand, in training pupils to write effective letters from the standpoint of content and style, the teacher is confronted with a much larger task, which includes the whole problem of building up the pupil's ideas of social life and developing his skill in clear-cut thinking and in organizing ideas. For such training the natural opportunities for letter-writing in school offer comparatively meager possibilities, while the opportunities for written expression in community life, history, literature, geography, and science offer manifold possibilities. For this reason we shall turn our attention to the training in written communication which may be provided in these content subjects.

Written communication in the content subjects. Examples.—Some of the possibilities of training in written communication, or expression, in these content subjects may be illustrated by a few examples.

In science. *Notebook entries chosen by vote.*—Our first example is from the science work of a fourth-grade class that was studying the habits of fur-bearing animals. Each child prepared a manila-paper notebook in which he pasted a large colored picture of each animal on a left-hand page and, on the opposite page, gave a few brief paragraphs about the animal's characteris-

tics and habits. These paragraphs were chosen by vote of the class from brief compositions which were written by all the pupils at the conclusion of the study of each animal. For example, the following paragraphs were chosen for the permanent record concerning the raccoon and the beaver:

THE RACCOON

The covering of the raccoon is a brown and white mixture which gives his whole appearance a sandy color. He is about the size of a medium-sized cat, but he looks larger on account of his long hairs. His face has a black mark. He has about seven black rings on his tail.

The raccoon's tail am ring-around,
The possum's tail am bare,
The poor ole rabbit has no tail,
But jest a bunch of hair.

The raccoon lives in a hollow tree. He prefers the oak or sycamore. His food is fresh shell fish, frogs, birds, poultry, eggs, fruits and vegetables.

One of his habits is to walk on tiptoe. Another is to wash his food before eating it. Another is to sleep in the day and hunt in the night. One of the raccoon's ways of protection is to jump into the water if water is handy. Another is to climb a tree, and yet another is to climb up a tree and jump down on the other side so the dogs will lose the scent. In the north the raccoon hibernates in the winter.—DAN

THE BEAVER

It is interesting to know what beavers eat. The beavers are very fond of water plants and the bark of trees. They carry the twigs to their house and eat the bark. Then they take the rest of the stick down to the dam to help mend it. The beavers store their food in the channel of the stream near the dam. When winter comes, the beaver can get his food whenever he wants it. Don't you admire the beaver?

JOSEPHINE

In geography. *Accounts of activities in making sand-pan map.*—To illustrate the use of written communication in geography, we print two short compositions written by fifth-grade

pupils whose class had just finished making in the sand-pan a surface-and-products map of the United States. In order to illustrate rather fully the spontaneous expressional abilities of fifth-grade children, the compositions are presented in their original form (prior to correction for misspellings and punctuation). Later we shall comment on the contrast between such relatively rough drafts and the revised drafts. The sample compositions follow:

5B. GEOGRAPHY

Kenneth U. E. S.

MINING

We made a soil map of the United States. I was on the mining committee and I put some iron in the Lake Superior region, in Sout Carolina and Pennsylvania. I also put some gold in colorado and California. I put some coal in Pennsylvania, Indiana, North and South Carolina, New York and Nebraska. I put some copper in the Kewahnee peninsula. I put some zink in Missouri also.

5B. GEOGRAPHY

Warren University Elementary School

OUR SOIL MAP

We have been studying the United States in Geography and our teacher suggested that we make a soil map of the United States.

We had the janitors put the soil in a pan which we had made seven by five feet, and we started to model the map. We all helped to model it. When we got the shape the best we could we put clay in little strips around the shape so that the water when put in the oceans would not swamp the soil. We had a lot of trouble with Maine and the Great Lakes. Miss Storm did not help us but told us whether the shape was good or not. She told us the Great Lakes were not good. We tried again and again until we got the shape to suit us. Then we made the Apalachian mountains and the Rocky Mountains. Then we put salt on them to repersent snow. And then we put the water in the ocean and Great Lake. We put the little trains to show the important railroad centers and boats to show the transportation all over

the United States coast. New York is a great apple region so we put apples there. And fish on Cape Cod to repersent the fishing the fishing Industry. We also put cactus in Texas and Florida and Wherever it grows. We thought it would be best to have water in the Mississippi River so we put in clay. But we found it better not to have it so we put in silver paper.

History. *Accounts of constructions and of Roman mythology.*—As examples of practice in written communication by pupils who are studying history, we give two compositions by fourth-grade children who were studying the history of Rome. The first one, as in the case of the geography compositions, is based on some construction work, while the second is derived from reading Roman mythology.

4A. HISTORY

U. E. S.

THE CAPITOL

Another important temple we built in our sand pan was the Capitol. After Tarquinius Priscus's enemies had been subdued he set to work to improve the city and in honor of Jupiter, Minerva and Juno he built a splendid temple called the Capitol. While the workmen were working on it they had to remove a few altars that had already been put in but Tarquinius would not let them move the altar of the god of youth because he said, if they did they would not keep young and strong any more and also he would not let them move the altar of the God of Boundaries because he said, their boundaries would keep going backwards if they did, so the two altars were left standing. When the temple was finished it was the most beautiful temple Rome had ever had. It burnt down three times but was always rebuilt again. One of these times when it was rebuilt it was so pretty that I will have to describe it to you. The gates were of brass covered with gold while the inside was of marble and was decorated with gold and silver ornaments. It was situated on the south west side of the Capitoline hill and covered eight acres of ground. The children that modeled the Capitol in the 4 A grade are Payson Wild, Helen Farwell, Roger White and Harry Harkins.

4A. HISTORY

THE FOUNDING OF ROME

Long ago there was a King of a town called Alba Longa, but his brother who was a wicked man and wanted to be king himself took him off the throne, and locked his daughter up in prison where twin sons were born to her. When her uncle heard this he became jealous and ordered them to be drowned in the river, Tiber. At that time the river Tiber was overflowing and the servant was afraid to go near so he left them in shallow water and they drifted down the river where they caught in some vines on the south side of the river. After awhile the twin babies began to cry and a mother wolf who had lost her cubs came and nursed them. But as time wore a shepherd who had seen the wolf going and coming, soon found the boys and named them Romulus and Remus. It wasn't long before they heard how their father had been taken off the throne. So one day they set out to put their father back on the throne. But the people of Alba Longa could not live inside its walls so Romulus and Remus made a city on the Palatine hill. But the people did not know what to call the city, so one day Romulus stood on one hill and Remus on another hill, after awhile Remus saw six vultures and Romulus saw twelve vultures and the city was called Rome after Romulus.

Content subjects provide abundant content and audience situations.—These examples illustrate a few of the numerous and varied opportunities for practice in written communication in the content subjects. Among the advantages of such opportunities for written practice are these: (1) the pupils are readily provided with "something to write about" from the vast stores of information which these subjects provide; (2) natural audience situations may easily be created by having individual pupils or groups of pupils investigate, discuss, and interpret special topics that are of general interest to the class, but concerning which many pupils are not informed.

How to balance spontaneity and good form.—In introducing the compositions from geography we noted the fact that mistakes in spelling and punctuation still remained in the samples. This fact raises the question of securing a proper balance,

in pupils' writing, between (1) spontaneity of expression and (2) good form. Teachers of English are divided into two rival camps in debating this balance. One camp insists on "accuracy first" and usually succeeds in killing spontaneity and interest; the other camp believes strongly in "vital content and spontaneous expression" and is likely to neglect accuracy.

Both rough drafts and corrected drafts to be inspected and encouraged.—Probably the proper balancing of spontaneous expression and grammatical accuracy is best secured by distinguishing between (1) the rough first drafts which are common in actual authorship and (2) the revised and corrected drafts which the author prepares later. The proper balancing of these is well suggested by Charters in the following statement:

> Teachers complain of two things. One group of teachers says that the composition work of children is very slovenly. [Other] teachers say that children, when they pay too much attention to writing, spelling, grammar, and so forth, become stilted and stiff in what they write or talk about.
>
> In dealing with both these criticisms a double standard will solve many problems, for a teacher should allow two standards in written work. I find that most people who write anything important need to make at least a first draft and a final draft. Sometimes one has to make two or three drafts in between the first and last. The first draft is usually very rough. . . . It is not the kind of work that one would wish to be judged by. The final draft . . . looks very different. It is worked out with due consideration for form.
>
> Now the first criticism—that pupils' work is slovenly—is due to the failure of the teacher to require a final draft, legible and readable in form. The teacher accepts the first draft and complains of slovenliness instead of requiring a readable draft. The second criticism—that pupils are stilted and formal—arises from the failure of teachers to allow the pupils time for making a first draft, or to show them how to do the preliminary work. Then, of course, when the pupils have to write very legibly, and when they have to stop to make corrections, all the time fearing that they may make some mistake, they will write as stiltedly as a young man talks when he visits very precise people in unusual surroundings and fears with every word he says that he will

make some bad mistake. If the teacher would permit and show the pupils the use of the two drafts, allowing natural work in the first and requiring careful work in the second, the content would be spontaneous and the form careful and readable. (8: 46–47)

Outlining is an important stage in rough-drafting.—One of the most important stages that frequently appears in rough-drafting is outlining. In actual authorship this often does not go beyond merely jotting down topics in a certain order, with subtopics indented under main topics. Frequently much shifting, crossing out, and inserting of topics will be made upon the same draft, which, consequently, may not appear very neat but may represent a maximum of careful thought. Such thoughtful organizing and reorganizing frequently involve all the activities in problem-solving described in Chapter X and, in fact, offer some of the best opportunities for training pupils in reflective thinking. Hence the teacher should encourage pupils to exhibit to her their rough outlines as objective evidence of the organizing and reorganizing that they are thinking out. Frequently, in order not to lose the heat of spontaneous expression, the fuller writing may be done from such rough-draft outlines in which mere indention is the only device used to indicate subordination of topics. Sometimes, in order further to clarify the thoughts before beginning solid writing, a scheme of numbering the main topics and subtopics may be imposed on the rough-draft outline *after* the latter is written. At other times, if the pupil-author has had considerable time (minutes or hours or days or weeks) to organize his material *mentally* before beginning to write, his first rough-draft written outline may be clearly numbered, as he proceeds to write it, by using some such scheme as

I.
  1.
  2.
    a.
    b.
II.

In such cases extensive experimental outlining has often taken place in the pupil-author's mind before the jotting down of his topics on paper. If he is going to "publish" his outline (for example, by writing it on the blackboard), he may need to polish it; but if he is using it merely as a helpful, tangible, mechanical guide in a process of thoughtful, somewhat fluent statement, such polishing may impede effective expression.

Distinguish outlining in communication from outlining in silent reading.—In view of the preceding discussion of rough-drafting in outlining, we should distinguish between the use of outlining as an aid in expression and outlining as an aid in silent reading. In the latter case the outline is intended sometimes to *force* the pupil to grasp the main points and sometimes to *aid* him to grasp these points through the graphic objectification of another author's organization that has already been settled or congealed in print. On the other hand, when the pupil is himself the author in the act of composing, his outline may be merely a transient stage in a process of thought that is still somewhat fluid and subject to rapid modification.

Oral communication a further aid to writing.—Finally, we may note that oral communication is, like rough-drafting, also an important aid to written communication. For example, I find that my own writing proceeds much more easily and fluently when I have had opportunities to lecture from rough-draft outlines upon a topic before undertaking the written discussion of it. In recent years composition teachers have emphasized such preliminary oral discussion in connection with much of the written composition in elementary schools and high schools. We have already noted one clear-cut example of this practice in the "oral exercises" which preceded the letter-writing exercises in the textbook described on pages 425–426.

Oral discussion a central factor in several types of learning.—Hence we find additional reasons for esteeming the practice in oral discussion which we have already emphasized in several connections. Thus in our chapter on problem-solving we showed

(on page 277) that important social problems are frequently solved through oral discussions, and (on pages 279–304) we gave examples of pupils' securing training in such problem discussions. Again, in the section of this chapter devoted to oral communication (pages 407–409) we showed the social importance of practical oral discussions and the need of the pupil's acquiring skill in this art. Finally, in the present connection we see how progressive composition teachers frequently organize preliminary oral discussions of topics in order to aid pupils in organizing and formulating their material for exercises in the written communication of ideas. In the next section of the chapter we shall turn our attention to an example of skillful teaching in which we find the most intimate interrelating of oral and written communication in the study and discussion of an important topic from social life. The manner in which this new section is related to the preceding sections may be observed by reviewing the titles of the latter; namely, I. History and Principles of Teaching Composition: from Written to Oral; II. Practice in Oral Communication; III. Practice in Written Communication.

Section IV. Varied Oral and Written Practice with a Rich Social Topic

Twelve weeks on "Ships and Shipbuilding."—In this section of the chapter we desire to give the reader a concrete idea of one of the most effective methods of skillfully organizing practice in oral and written communication. We shall do this by presenting a detailed description of the activities of a sixth-grade class in English which spent twelve weeks in the study of the topic "Ships and Shipbuilding." During this period many varied forms of practice in oral and written communication were provided with the rich content—historical, scientific, biographical, and literary—that this topic afforded. The teaching was con-

ducted by Miss Edith Parker,[1] in 1914, in The University of Chicago Elementary School. The account given below is a reprint of an article by her in the *Elementary School Journal* for October, 1914. It is one of the best descriptions of skillfully organized teaching that I have ever read.

A SIXTH-GRADE ENGLISH UNIT: SHIPS AND SHIPBUILDING
BY EDITH PUTNAM PARKER

Choice of topic.—Search for a topic which would be of genuine interest to eleven-year-old and twelve-year-old boys and girls, and which would, moreover, open to them a broader view of some of today's work in the world, led to the selection of the subject "Ships and Shipbuilding." The purpose of this article is to sketch the development of the topic as worked out with a group of sixth-grade children.

Beginning with children's experiences.—The children's own experiences with boats or ships of any kind were utilized to introduce the topic. These stories were told orally to the class. The variety of experiences was surprising, and interest increased steadily as the stories multiplied. Use of the suspense element in interesting others and clever selection of titles were two of the several good points discovered by the children in the following account:

A New Kind of Sailboat

When my father was a little boy, he always spent the winter in New Orleans and the summer in Kentucky. One autumn when the family were going up the Mississippi River, a very funny thing happened. Father was on the top-deck looking up the river when, all of a sudden, he heard a scream from the nurse who was standing near him. A few minutes before, she had been holding a chubby baby in her arms. Now she was empty-handed. She stood there screaming and pointing to the water. There was the baby floating along the river. The baby's dress had a very long, full skirt, and a strong gust of wind had carried the baby from the nurse's arms to the water. There the skirt, being full of air, helped the child to float gently along until it was rescued. The baby had enjoyed the ride, and was none the worse for its wetting.

[1] As suggested in the footnote on page 279, to satisfy the curious reader we may state that Miss Parker is not related to the author of this book. Some of her cleverly conducted geography lessons are described on pages 238 ff.

Started scrapbooks.—In these reports mention had been made of boats and ships as widely different as tugs, colliers, yachts, schooners, ocean liners, warships, and canoes. Distinctions were discussed orally, and many of the children started scrapbooks containing pictures of as many as possible of the kinds discussed. Though the subject of shipbuilding had at no time been mentioned to the children, pictures of ships in construction soon began to appear in these scrapbooks—particularly in those of the boys. "Building a Three-Decker"; "The *Ridavavia,* nearing Completion at Quincy, Massachusetts"; "The Latest Work in Shipbuilding: the White Star Line's New *Britannic*"; and "Turbines being hoisted on Board the *Aquitania,* now building at Clydebank," were titles of some of the illustrations secured.

Letters to steamship companies.—To all the class, excepting two boys particularly interested in hydroplanes and hydroaëroplanes, the great ocean liners seemed more attractive than any other vessels. This preference directed the course of procedure and led the class to write letters to the best-known ocean-steamship lines for further information. Each child chose the company to which he or she wished to write. Many asked permission to write to several. The substance of all the letters was much alike. Answers were awaited with much interest. [The following is an example of a pupil's letter:]

Chicago, Ill.
Jan. 21, 1914

Cunard S. S. Co.
New York, N. Y.

Dear Sirs:

Will you please answer for me the following questions concerning your steamships? What are the names of your largest boats? How large are they? Where and how are they built? What are your principal sailing routes? I shall be grateful for any pamphlets about them or pictures of them which you can send me.

Yours truly,

_____

——— W. Ave.
Chicago, Ill.

Ark and "Argo" Stories.—While awaiting the replies to these letters, the class read the stories of the two famous prehistoric boats, the Ark and the *Argo.* The Biblical version of the Ark story was read, talked over, and re-read. Additional motivation for expressive reading of the passage lay in the knowledge that one child was to be chosen by the others to read the story in the morning exercise on ships that the class had been asked to give before other classes.

Retelling and illustrating.—After the reading of the story, opportunity was given for two modes of self-expression. First, the written story of the Ark was reproduced in the children's own language. Then a crayon drawing of the Ark, as the child conceived it, was made. Owing to individual differences the amount of Biblical diction which was carried over into the children's accounts varied widely. The two copied below were chosen to illustrate this particular point.

NOAH'S ARK

The Lord requested Noah to build an Ark, so that when the flood came, he could preserve himself, his family, and the various animals. It was built of gopher wood, which we now call conifer cypress. The Ark was five hundred twenty-five feet long, eighty-four feet wide, and fifty-two feet high. It was not built for travel, and merely floated about until the flood subsided.

NOAH'S ARK

Many, many years ago, not long after the time of Adam and Eve, the Lord saw that there was nothing but evil in the mind of man whom he had created. So God determined to send a flood and wash the face of the earth bare from man. In this dreadful time, there was but one patriarch who won favor in the sight of the Lord. This was Noah. He only had not forsaken the Lord, . . .

In the working-out of the crayon drawings in the art period, questions such as those of proportion, of coloring, of placing of door and window, of showing three stories, and of the general shape of the boat presented individual problems to be met. The decision was unanimous and very amusing that no steering gear was necessary, because Noah desired only to float. The finished drawings were most interesting.

The *Argo* story was similarly treated. The sources used for this tale were Lowell's "Jason's Quest" and Baldwin's "Golden Fleece." Since only one copy of each was available, each child read in turn to the rest of the class. English periods did not come often enough to satisfy their desire for the completion of this story, and the class voluntarily held after-school sessions to hear it finished. The little accounts reproduced after just the one hearing were usually good. Some chose to write of the building, some of the launching, and some of the return of the famous craft. [The following example treats of the building:]

The Building of the *Argo*

Jason walked through the land crying, "Who will build me a ship large enough for fifty men?" Men laughed at the idea of so huge a boat, but at last a man called Argus volunteered to try. One day as he was at work among the timbers on the beach, a beautiful woman came toward him. As she approached him she asked, "What kind of a thing is this?"

"I am trying to build a ship," he answered humbly.

She told him that so poor a craft could never sail the seas, and the next moment disappeared. But in her place there stood Athena, the goddess of wisdom. She showed him how to use strong cedars for his hull, and for the prow she bade him secure a bough from the talking oaks of Dodona. Before long, with such help, he completed a seaworthy vessel, wonderful to behold, and after its builder it was named the *Argo*.

Telling about material from steamship companies.—By the time the *Argo* stories were finished, a mass of material (truly alarming in quantity from the teacher's standpoint) had been accumulated from the steamship companies. Several very large pictures had been sent, and pamphlets and small pictures of every description. More delightful to the children than anything else, however, were the personal letters which they received answering some of their many questions. Much clamoring to be first to tell about and show their treasures ensued. The coveted permission was given to the one who showed the best simple outline of facts to be presented. A class hour was spent discussing the organization and selection of the material. When two or three children wanted to talk about ships of the same company, they decided among themselves upon the division of the subject to be made. For example, of the three who wrote to the Hamburg-American Line, one talked upon the *Imperator*, another upon the trip of the *Cleveland* around the world, and a third upon the *Vaterland*—at that time still in process of construction at the great shipyard of Blohm & Voss, Germany. Several of the children laboriously made extra diagrams and maps of routes to help them picture effectively the exceedingly great size and merit of their respective ships. A mere skeleton of one of these oral reports, taken down by a student assistant as the child talked, is included below.

Cunarders

This large picture is of the *Lusitania*. This ship is 700 feet long and has a tonnage of 32,000 tons. If you look down to the water from this deck, you are looking down a distance of 80 feet to the water. Here is a dia-

gram I have made of the Auditorium Hotel. If the *Lusitania* were put down Michigan Avenue in front of the Auditorium, it would reach this far. If you put one of these funnels down on the street, two street cars could run through it at once on double tracks the usual distance apart.

The *Lusitania* has a sister ship, the *Mauretania*. They are both fast ships and sail weekly between New York and Liverpool. The *Lusitania* was built on the Clyde, Scotland, and the *Mauretania* on the Tyne, England.

The Cunard Company are now building the *Aquitania* and *Transylvania*. The *Aquitania* is already launched. The hull of the *Transylvania* is just being built. This picture shows the fourth funnel as it is being put into place on the *Aquitania*. These new boats will be the finest and largest on the line. The names of all the large Cunarders end with *ania*.

Search for further steamship information.—Needless to say, all this information was divulged to the rest of the class with no small degree of pride on the part of the possessor. As reports multiplied, the children made it a point to learn the names and sailing-routes of the great liners not only of their own companies but of all the companies discussed. Then they began, also quite of their own accord, to bring in reports from the daily papers as to the whereabouts of the various ships that day. Atlases were consulted more eagerly than in the geography class. That the *Cleveland* had arrived in Bombay late the preceding night was a subject of before-school conversation.

Perhaps the most interesting report made was upon the French Line. This told how all these liners could be converted into war vessels by the French government; . . . how they were built at the St. Nazaire yards, although they could be built much more cheaply in England; and why these things were true.

Reports on great ships of history.—As soon as a child had given a report on his material a subject for later report was chosen. This was to be based upon reading done in the library. Unless special request for a different kind of topic was made, the assigned reading was upon some of the great ships of history. All read and illustrated a chapter upon the evolution of a boat. Individual instruction was given in the use of a card catalogue in finding the books referred to. The "American Sailor," "The Boys' Wonder Book of Ships," and E. Keble Chatterton's two volumes were found particularly adapted to children's use. Some of the topics assigned were "The Norse Boat of Gokstad," "The *Golden Hind*," "The *Bucentaur*," "The *Great Harry*," "The *Blessing of the Bay*," "The *Clermont*," "The *Great Western*," "The *Constitution*," etc.

The subject of the *Merrimac* and the *Monitor* was written up by one lad upon his own request.

Modern shipbuilding reported on.—The children, already not a little familiar from their various reports with the chief shipbuilding regions of the world and with the parts of a great ship, were now quite ready to study the chapter "Ships and Shipbuilding," in Allen's "Industrial Studies—Europe." The personal touch—the picture of the shipbuilder as well as of shipbuilding—was supplied by the teacher's stories of Peter the Great, Phineas Pett, Robert Fulton, and other great shipbuilders. Many shipbuilding articles from magazines were brought in by the class, the best of which was from the *Scientific American* of January 31, 1914. It was entitled "The Most Modern Shipbuilding Plant in the World." Early in the discussion of building ships of iron and of steel, the children were puzzled as to how an iron ship could float. The following is one boy's volunteered effort to explain:

Why an Iron or Steel Ship can Float

If you put a piece of wood on the water in a basin—like this—you see it floats. We found out in our study of primitive boats that logs floating down stream gave early suggestions of boats. Therefore people were not surprised when a boat built of wood floated. But if you put a lump of iron in the water in the basin—like this—you see it instantly sinks. So when people first heard of steel ships, they were sure they would sink. I am going to try to show you why they do not. When I put this little iron cup in the water, you see it floats. The secret is in its shape. You see this is not a solid piece of iron but a shell of iron filled with air. The air and the iron together are light enough to be held up on top of the water just as the wood was. The cup sinks to within half an inch of the brim. Then we know that it is lighter than an amount of water just the size the cup would be. Steel ships are hollow like the cup.

Longfellow read.—The class next read together Longfellow's "Building of the Ship" and liked it. Modern shipbuilding methods were often compared to those of the "master." The parts of a ship named presented nothing strange. The thought content was easily mastered.

Short reports on library work.—During the study of the poem, five or ten minutes each day were taken up with the reports based on the library work. Some of these were oral and some written. The following one was written:

THE *BUCENTAUR*

Venice is built on islands, with the sea upon all sides. For this reason, and because she had obtained most of her wealth by commerce, she grew to love the sea. Venice felt that the sea loved her, too, and would protect her. From this idea there came to be held a beautiful ceremony called the Marriage of Venice and the Sea.

Once every year the Doge, or chief ruler of Venice, accompanied by the priests and many attendants, sailed out into the harbor to perform the marriage service. It was the most important of all the holidays of the Venetians, and the harbor was gay with throngs of people and bright decorations.

The *Bucentaur*, the boat in which the Doge sat, was a beautiful boat. It had two floors, or decks. Upon the low deck sat the men who rowed the boat. The upper deck was covered with velvet and adorned with much gold braid and many tassels. At the stern was a small window from which the Doge cast a ring into the sea, while the priest solemnly read the words of the service.

For almost four centuries this beautiful ceremony was performed every year, and many different boats were made to be used for it. Always, however, the boats were named the *Bucentaur*.

Original poems.—As a final step the class wrote original poems about any phase of ships or shipbuilding that they chose. The results exceeded expectations, especially in the distinctly ethical content embodied in such an attempt as the following (for such a "moral" had never in any way been pointed out or mentioned in class).

For us the steel is glowing,
  For us the ribs are bent,
For us the hammers plying,
  For us are labors spent.

The builder in his office,
  With master mind does plan,
But every little labor counts,
  Down to the lowest man.

Many rather long rimed stories of ships and wrecks and building were composed, but more pleasing than any of them was this little four-line production:

If you were but a fairy,
  And could grant me wishes three,
I'd choose to be an architect
  Of ships that sail the sea.

Kipling read.—Last of all came Kipling's story of "The Ship that Found Herself." The children, already familiar with his "007," were rejoiced to know that he had written a ship story too. It was read to them by the teacher during the last two days of the twelve weeks' period over which this unit of English work had extended. They seemed to enjoy every word of it.

Training provided.—When the unit of work was over, the children realized only that they had found out some very interesting things about ships and shipbuilding, and that they wanted and intended to know more. The adult onlooker knew, however, that training in oral composition, in writing stories (both reproduced and original), in oral reading, in the proper use of a library, in letter-writing, in spelling and dictionary work, and in outlining and organizing material had been given them, as well as a knowledge of some of the world's mightiest carriers and a glimpse of one of her greatest industries.

Other examples of expressional practice based on rich social topics.—The above account by Miss Parker needs no comment from me to impress the reader with the interest, vitality, effectiveness, and value of such intensive study of a rich social topic, in an English class, as the basis of various forms of practice in communication. The opening and closing paragraphs of Miss Parker's article summarize very well these general features of the teaching. Another example of the same type of practice under a different teacher, but in the same school, centered in the topic "Life-saving." The fact that a life-saving station on Lake Michigan was close to the school made it easy to provide concrete experiences, which were supplemented by many others from literary sources. Another example of such intensive study of a social topic by English classes in another school centered in the study of the pioneer history of the local community. Pupils specialized in investigating and reporting upon various phases of the topic, and many sources of information were canvassed for material upon pioneer occupations, amusements, notable enterprises, biographies of leading pioneer citizens, etc. The titles of typical report were "The Nationality of our Pioneers," "A

Chat with the Earliest Settler," "The Spelling Bee," "The Husking Bee," "Digging the Old Canal," "Building the First Railroad," etc. Finally, for an extended account of the thorough use of social-science topics for composition purposes the reader should study reference 9*a* at the end of this chapter. Such teaching, with its rich experiencing and varied practice in communicating vital social content to real audiences, contrasts very strongly with the contentless formal language lessons that formerly monopolized the English lessons in many schools. Yet in some schools frequent formal language lessons are still desirable and necessary in order to correct the wrong habits of speech that pupils form in uncultured homes and on the street. The task of conducting such formal language lessons has been greatly simplified in recent years through certain scientific studies of pupils' language errors, which we shall discuss in the next section of the chapter.

Section V. Correct Grammatical Practice; Scientific Outlines

Scientific studies of pupils' errors simplify grammar course. —In our discussion of sentence errors in letter-writing (on pages 428–430) we have already given an excellent example of the effort to ascertain pupils' grammatical needs through a study of the errors that they actually make in their speech and writing. Another similar investigation, which is among the most reliable of many that have been conducted, was made by studying 1040 pages of stenographic reports of the oral classroom language of children in the Speyer School in New York City. From such investigations of the common grammatical errors of children, revised courses of study in grammar have been prepared which omit many topics that fattened the old-fashioned English grammars. These omitted topics are now known to be unnecessary for most children, because the latter do not make the errors in speech upon which the eliminated discussions were based. Thus

—just as in the case of handwriting, spelling, and arithmetic—scientific studies of social needs have greatly simplified the problem of teaching English grammar.

Emphasize devices for attentive repetition of correct forms. *Grammar games.*—Another great improvement that has recently become popular in the teaching of English grammar is to give pupils more practice exercises or drill in correct grammatical usage. This drill centers upon the forms in which the pupils need special corrective exercises. Such exercises are not only embodied in improved textbooks but are also described in manuals for teachers, which contain many clever devices to secure attentive, interested repetition by pupils, since such *attentive* repetition is necessary to make the practice effective. Among these devices are grammar games. For example, in order to teach children to say "I saw" instead of "I seen," one syllabus gives this game:

> The teacher has an "I saw" box. From this she draws all sorts of objects. These she holds up in rapid succession, then hides them, calling upon pupils to tell what they saw, thus:
>
> *Teacher.* What did you see, Fred?
>
> *Fred* [very likely]. I seen a top [or perhaps "I sawn a top"].
>
> *T.* I saw a top.
>
> *F.* I saw a top.
>
> *T.* [taking out another object]. What did you see, Mary?
>
> *Mary.* I saw a ball [and so on].

Many other games, each devised to correct some special grammatical error, are described in the teachers' manuals. When such games are so conducted as to place a *premium* on *correct responses*, they help considerably in forming correct habits of speech. On the other hand, if the pupils become wildly interested in the game to the neglect of correct grammatical responses, little good results. An example of such wrong practice occurred in the case of a grammar game in which the pupils "fished" gleefully for slips of paper but shouted ungrammatical answers to the questions contained on the slips.

Practical grammatical rules aid some pupils to improve their language.—While such corrective grammatical practice provides the most effective grammatical training for most pupils, discussions of the related rules will help some pupils who are interested enough and competent enough to think intelligently about the improvement of their language. For this reason a limited amount of practical grammatical information is retained in the improved grammars. For example, related to the practice with "I saw" (which is described above) is the practical information about verbs in the various tenses.

Sample lesson illustrating how to teach tense.—In familiarizing pupils with any one of these general grammatical topics, a common practice used by skilled teachers is to follow the Herbartian five formal steps which we discussed on pages 155–156. An excellent example of teaching that illustrates this practice is contained in the following quotation from Thorndike's "Principles of Teaching." The topic of the lesson is "Tense—Present, Past, and Future." The same type of teaching, in which fairly full discourse addressed to the pupils appears, is found in the more improved textbooks. The lesson proceeds as follows:

Review.—Pick out the verbs in these sentences:

The boat now goes at eight o'clock, but next year it will make two trips, one at six, and one at nine. This arrangement was made by the company at their last meeting. The residents had hoped for many months that better means of communication with the city would soon be established.

Why do you call "goes," "will make," "was made," "had hoped," and "would be established" verbs?

Aim.—A verb may tell more than what somebody or something does or is. Today we will find out one of the other things that a verb tells.

New examples compared.—Look at the verbs in the sentences below and see what the difference is between those in the first column and those in the second:

The boat went yesterday.	The boat will go next year.
She sang that song Sunday.	She will sing it again tomorrow.
They were sick last week.	They will be sick for a few days longer.

Abstracting ideas of time.—Which of these verbs tell that something was in the past? Which verbs tell that something will be in the future?

Write two sentences about the action of a man going to New York. In the first sentence tell about the man's going to New York in the past; in the second tell about the man's going to New York in the future.

Look at these sentences:

The train is going sixty miles an hour now.
Hear how loud that bird sings.
They are sick.

What other time is there besides the past and the future?

Practice in using ideas of time.—Tell in the case of each of these sentences whether the verb expresses a past action or a present action or a future action:

He will knock at your door at four o'clock.
He knocked at my door yesterday.
They write during this period.
He wrote a letter in the evening.
The wheels go around very fast.
They went around faster the other day.

Abstracting variations in form.—What is the difference between the form of the verb "knock" when it expresses or denotes future action and its form when it expresses or denotes past action? What is the difference in the form of the verb "write" when it denotes past action? What word is used to tell about a person going in the past? to tell about a person going now?

Summary.—Verbs tell not only the kind of action or event but also the time when it takes place. When the action or event is represented in the past, the form of the verb is different from what it is when the action or event is represented in the present or in the future.

Definition.—A difference in the form of a verb to denote time is called *tense.*

A verb that denotes present action is in the *present tense.*

A verb that denotes past action is in the *past tense.*

A verb that denotes future action is in the *future tense.*

Practice in using.—Write under each verb in the sentences below what tense it is in (as is done in the first line).

It is hotter this summer than it was last summer. It will be cold
(present) (past)
enough in the winter. The sun will rise later and set earlier. Evening came so soon last November that the lights were being lit in the house when I reached home from school. We do not light them now until after seven. You can see that it is quite light now, though the bells are ringing seven.

Did they send up my trunk from the station? No. They would not promise that it should be sent without a check. If you will send them the check it will be sent. I shall be passing the office this evening, anyway. Won't it be open? It used to be open evenings.

Write two sentences each with a verb in the present tense.

Write two sentences each with a verb in the past tense.

Write two sentences each with a verb in the future tense. (**6**: 168–170)

Lessons provide (1) *clear-cut example*, (2) *attentive scrutiny, and* (3) *varied practice.*—It is obvious that this lesson follows in general the Herbartian steps which we described on pages 155–156 of our arithmetic chapter; namely, (1) preparing the pupil for the new topic; (2) presenting examples; (3) comparing examples; (4) defining their general characteristics; and (5) giving practice in using the general rules with new examples. To summarize in three rules the fundamental characteristics of such skilled teaching of the abstract ideas and rules of grammar, we may repeat here the statement that the most essential features of this Herbartian procedure are as follows:

1. *Experiencing clear-cut examples.* Give the pupils personal experiences with clear-cut, varied, typical examples of the grammatical form, principle, or rule.

2. *Attentive scrutiny.* Raise questions which stimulate the pupils to scrutinize attentively these examples so as to note the general characteristics of the latter.

3. *Varied applications.* Give varied exercises that will train the pupils in recognizing the grammatical form or in applying the grammatical rule in new situations.

Section VI. Measuring the Results of Practice in Composition

Examples of scales.—Considerable progress has been made in devising tests and scales for measuring pupils' attainments and progress in punctuation, grammatical accuracy, and general quality in written composition. We shall give three examples to illustrate this fact.

Punctuation scale.—An example of a punctuation scale is the one prepared by Daniel Starch. It reads in part as follows:

PUNCTUATION SCALE A

Punctuate the following sentences:

Step 6

1. We visited New York the largest city in America
2. Everything being ready the guard blew his horn
3. There were blue green and red flags
4. If you come bring my book

Step 7

1. I told him but he would not listen
2. Concerning the election there is one fact of much importance
3. The guests having departed we closed the door
4. The train moved swiftly but Turner arrived too late

Step 8

1. Last year I studied grammar history and geography
2. Next we went to Vienna the capital of Austria
3. But alas this was not the case
4. Ever since Betty has loved the flag

The sentences continue to increase in difficulty of punctuation up to Step 16. A pupil is given a score corresponding to his success in punctuating correctly the successive steps in the scale. Blanks are furnished for recording the pupils' scores. Standard

scores that high-school classes and the higher grades in the elementary schools should attain are also provided.

Diagnostic language tests.—Tests of the attainments of pupils in grammatical accuracy may be illustrated by the Charters diagnostic language tests. These consist of a series of sentences, some grammatically correct and some incorrect. The pupils are asked to mark with a cross those that are correct and to rewrite correctly those that are incorrect. Here are a few samples of the miscellaneous sentences:

1. The boy got well.
2. I don't like that there color.
3. I left it go.

Samples from the test on verbs are as follows:

1. I saw him.
2. They set there yesterday.
3. The boys have ran away.

Similar sentences are especially organized for testing pupils' use of pronouns.

Composition scales.—Scales for measuring pupils' attainments in written composition were first scientifically organized about 1912 by E. L. Thorndike and M. B. Hillegas. Their scheme may be illustrated by a modified scale especially devised by M.H.Willing and described in the *English Journal* for March, 1918. Pupils who are to be tested with this scale are asked to write a composition on some exciting experience and are given a suggested list of ten topics, such as "A Storm," "An Accident," "An Errand at Night," etc. After the compositions are written they are graded for general quality by comparing them with eight sample compositions which range from very poor to excellent, as illustrated in the following samples. The score of each sample composition is indicated by the number printed above it. Only the opening sentences of the compositions for steps 40, 70, and 90 of the scale are given here, but sample 20 is given completely.

20

Deron the summer I got kicked and sprain my arm. And I was in bed of wheeks And it happing up to Washtion Park I was going to catch some fish. And I was so happy when I got the banged of I will nevery try that stunt againg.

40

My antie had her barn trown down last week and had all her chickens killed from a storm. Whitch happened at twelve oclock at night. She had 30 chickens and one horse the horse was saved he ran over to our house and claped on the dor whit his feet. When we saw him my father took him in the barn. . . .

70

When I was in Michegan I had an exciting thing happen or rather saw it, it was when the big steamship plying between Chicago and Muskegon was sunk about 7 o'clock in the evening. It caught on fire with a load of cattle and products from the market on board, one of the lifeboats carrying some of the people who were on board landed at our pier. . . .

90

The most exciting experience of my life happened when I was five years of age. I was riding my tricycle on the top of our high terrace. Beside the curbing below, stood a vegetable wagon and a horse. Suddenly I got too near the top of the terrace. The front wheel of my tricycle slipped over and down I went, lickety-split, under the horse standing by the curbing. I had quite a high tricycle and the . . .

Directions accompany the scale for scoring the pupils' compositions for both general quality and grammatical errors. Standard scores showing what averages should be attained in each grade are also provided.

Variety of scales.—The three examples of tests and scales for measuring language habits which we have given serve to illustrate the types of measurements that are being used. There are many additional forms on the market, and the teacher who is interested in such measurements should write for catalogues to the firms named before reference 18 on page 463.

Must not overlook skill in oral communication.—While these measurements of written compositions are important in estimating a pupil's skill in communicating ideas, we should not forget our analysis of the common occasions for *oral* communication in social life; namely, in leisure conversations, in practical discussions, in the dictation of business letters, and in short talks. The abundant need of giving practice in these most frequent forms of communication is often overlooked by teachers and supervisors, who become absorbed in drilling pupils upon the formalities of written composition. We should remember that an efficient commercial school can take intelligent pupils and perfect them in the formalities of correct letter-writing in a very short time, but that it takes years of enrichment of a pupil's experience and vocabulary and much practice in real audience situations to make him a good conversationalist about the world's affairs, an efficient participant in explanatory, problematic, argumentative, and persuasive discussions, a skilled dictator of effective business letters, and a master of the art of making short speeches. Therefore we need tests and scales for measuring such *oral* skills also, since it is along such lines that the progressive elementary school, with its enriched curriculum for giving insight into social life and with its varied audience situations for giving daily practice in informal oral discussion, is especially successful in giving pupils skill in some of these types of oral communication that are so common in the daily life of educated persons.

Section VII. Learning to communicate Ideas through Drawings

Social needs for description and information through drawing.—This final section of our chapter is concerned with the problem of training the pupils in drawing as a means of

ILLUSTRATIONS OF TYPES OF ARTISTIC DRAWING

After Whitford

ILLUSTRATIONS OF TYPES OF DESCRIPTIVE DRAWING—INFORMATIONAL, DIAGRAMMATIC, AND ANALYTICAL

After Whitford

communicating ideas. If we had time for a thorough discussion of this method of expressing ideas, we should approach the subject by an analysis of the social needs for drawing in the lives of ordinary pupils and adults. This has been done by Professor W. G. Whitford in a series of articles entitled "Curriculum-

Building in Art." In his discussions of the social uses of drawing he distinguishes three types: (1) "artistic drawing," which aims primarily at artistic effect; (2) descriptive, or informational, drawing; and (3) instrumental drawing, such as the mechanical drafting of plans for buildings, machine construction, etc. As examples of artistic drawing and descriptive, or informational, drawing, Whitford gives the pictures shown on page 457. From the standpoint of our chapter on training elementary pupils to communicate ideas, it is obvious that we are concerned primarily with the second type; namely, descriptive, or informational, drawing. The opportunities for using this form of drawing in daily life need to be canvassed by the same objective, mathematically precise methods as were used in ascertaining the spelling words and arithmetical problems of everyday life (as described on pages 53–54 and 146–147).

How pupils learn to draw.—Having ascertained the social needs for descriptive and informational drawing as a means of communicating ideas, our next problem is to find out how pupils learn to draw. Several investigations along this line were summarized by Professor F. C. Ayer in 1919 (as described in reference 20 at the end of this chapter). As typical of his conclusions, we may quote the following:

Story-telling interest dominant in early drawing.—The narrative, or story-telling, interest is the predominant motive underlying the child's use of drawing as a method of expression.

The various biographical studies of children's drawings give direct evidence concerning the earlier stages of drawing. Statistical studies of school children and classroom experiments show that few children take an interest in the representative value of drawing in the first grade and that there is a distinct loss in emphasizing detailed appearance during this year. Insistence upon correctness of details causes children at this age to stop using drawing as a spontaneous means of expression. The same line of evidence indicates that if not suppressed by criticism, the narrative tendency persists and may be used from the second grade on as a strong incentive to learn visual representation. (**20**: 105)

Principles of teaching drawing for communication of ideas. *Building up a pupil's "graphic vocabulary."*—One of the most useful practical accounts of the progress of pupils' abilities in drawing is a book by Professor Walter Sargent and Miss Elizabeth Miller, entitled "How Children Learn to Draw." In this account the story-telling interest is illustrated by numerous examples of pupils' drawings. In general, there is a close

Courtesy of The University of Chicago Elementary School

PUPILS' "GRAPHIC VOCABULARY" BEING ENRICHED BY ABILITY TO SKETCH VIKING SHIPS

parallel between the principles of teaching informational drawing as laid down by these authors and the principles which we emphasized in the earlier sections of this chapter. One of these principles—namely, the systematic increase of the pupil's vocabulary—is especially emphasized in terms of building up a pupil's "graphic vocabulary." For example, the pupil's drawing vocabulary is enriched in the kindergarten by ability to represent a green plant in a red flowerpot by using colored crayon. In the first grade he may add the ability to diagram a farmyard; in the second grade, to sketch an Indian wigwam; in the third grade, to sketch a green and brown palm tree on a yellow and purple desert bounded by the horizon line. And so he progresses,

gradually enriching and refining his graphic vocabulary until, when he leaves the elementary school, he has learned to draw so many common objects that he can sketch roughly for descriptive, or informational, purposes any situation which he desires to depict to his associates. (For further details concerning the

Courtesy of The University of Chicago Elementary School

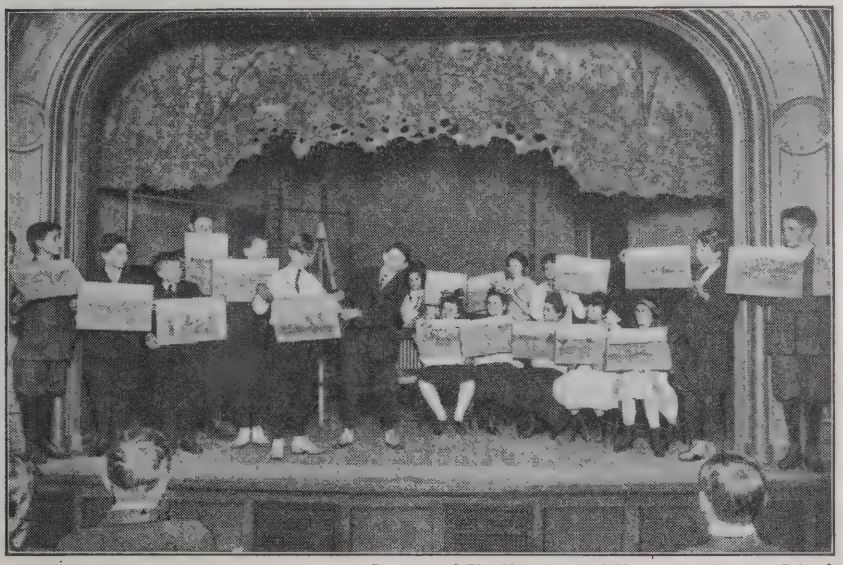
MAKING DRAWINGS FOR HISTORICAL ASSEMBLY PROJECT

See picture on the opposite page

problems of training pupils in communicating ideas through drawing, we must refer the reader to the references on that topic at the end of the chapter.)

Conclusion of chapter on communicating ideas.—In closing this chapter it is well to recall the fundamental principles of training in communicating ideas which we emphasized in the first section; namely, to create real audience situations for the pupils and to see that each pupil in his efforts to express himself gains clear ideas of his topic, an enlarged vocabulary, increased skill in keeping in mind longer and longer series of ideas, and ability to judge whether he is making his message interesting, clear, and

impressive to his audience. Most of the other points presented in the chapter are merely discussions of the value of such training or of detailed devices for giving the necessary practice and for measuring the pupils' attainments. However, since skilled teaching consists frequently in the use of effective devices, the latter



Courtesy of The University of Chicago Elementary School

TELLING THE ASSEMBLED SCHOOL ABOUT THE HISTORICAL DRAWINGS

Compare picture on the opposite page

should be highly esteemed and imitated wherever they can be effectively used, whether this be in the simple coöperative kindergarten discussions of a trip to the bird store or in the elaborate twelve weeks' investigation and discussion of "Ships and Shipbuilding" in the sixth grade.

Conclusion of Part II on "four thoughtful processes."—This chapter concludes our discussion of the "four thoughtful processes" included in Part II of the text. As indicated in the introduction to this part, these four processes include, first, acquiring the ideas and attitudes that give sympathetic insight into contemporary civilization, and, second, acquiring certain

intellectual skills; namely, skill in problem-solving, in silent reading, and in communicating ideas. We have seen how interrelated these four thoughtful processes are in the progressive elementary school; how the rich social content furnishes abundant opportunities for problem-solving, silent reading, and communicating ideas; and how these three latter processes serve to enrich, clarify, and organize the learner's ideas of social life. Many elementary-school pupils who have had the good fortune to experience skilled teaching along all these lines are well started in the direction of a liberal education and in the mastery of the fundamental tools of intellectual life; namely, skill in problem-solving, in silent reading, and in communicating ideas. Because of the intimate interrelation and interaction of these four factors, we grouped them together in Part II under the general title "Four Thoughtful Processes," in contrast with the "four elementary skills" (handwriting, spelling, beginning reading, and automatic arithmetical calculation), which we discussed in Part I. We still have left for discussion two types of teaching and learning, which we shall include in Part III under the title "Recreational and Moral Behavior."

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PART III. RECREATIONAL AND MORAL BEHAVIOR

CHAPTER XIII

INTRODUCTION TO PART III

A review glance at all types of learning.—As indicated before, the chapters of this text are divided into three groups largely to aid the author and the reader in organizing and grasping the main topics. These three groups are as follows:

Four elementary skills	Handwriting Spelling Beginning reading Arithmetical calculation
Four thoughtful processes	Understanding social life Problem-solving Skillful silent reading Communicating ideas
Recreational and moral behavior	Habits of harmless enjoyment Civic-moral ideals and efficiency

What unity has Part III?—We shall leave it to the advanced reader to discover whether Part III, with its title "Recreational and Moral Behavior," possesses sufficient unity to justify its title and organization. The beginning teacher does not care about this issue and need not bother about it. The grouping of the two chapters together will have served its purpose for such a reader if it aids her to remember that Part III contains one chapter entitled "Forming Habits of Harmless Enjoyment" and another entitled "Civic-Moral Ideals and Efficiency."

CHAPTER XIV

FORMING HABITS OF HARMLESS ENJOYMENT

INCREASING THE HARMLESS ENJOYMENT OF LEISURE

Main points of the chapter.—1. "More fun for more people" has become a slogan of many serious, democratic, humanitarian, and industrial leaders.

2. A teacher who sympathizes with this idea must avoid puritanism and "highbrowism" and must understand the great differences between individuals in their methods of enjoyment.

3. In any recreational pursuit the teacher may help the pupil by (1) introducing him to the recreation, (2) arousing his interest in it, (3) giving him the necessary recreational skill, (4) providing a sufficient number of pleasurable experiences so that he comes habitually to seek this recreation.

4. Among the principal lines of leisure occupation in which pupils may be trained are the following: reading, music, plays and games, dancing, contemplation of beauty, curious observation of nature and society.

5. Recreational programs for training in reading and music are rapidly being developed in elementary schools. Programs for reading are described here at length.

6. Less progress has been made in organizing training along the other recreational lines.

Sections of the chapter.—Our discussion of "forming habits of harmless enjoyment" or "increasing the harmless enjoyment of leisure" is divided into four main sections: namely,

I. Social values of harmless enjoyment (p. 467).
II. General precautions for the teacher (p. 470).
III. General view of the school's recreational opportunities (p. 475).
IV. Details concerning various lines of recreation (p. 477).

Section I. Social Values of Harmless Enjoyment

More fun for more people.—You can make your own choice for the title for this chapter. Which do you prefer: "Forming Habits of Harmless Enjoyment," or "Increasing the Harmless Enjoyment of Leisure," or the heading of this paragraph, "More Fun for More People"? Any one of these suggests that we are concerned with the recreational activities of people in this world and are interested in bringing as much of fun and frolic or of quiet, contemplative enjoyment into their lives as we can without interfering with their service to society.

What is your attitude toward fun?—The last phrase, "without interfering with their services to society," raises an old question that has been seriously debated ever since Calvin, about 1540, cleaned up the town of Geneva, Switzerland, and put a ban on light amusement. His attitude—which, through its vigorous adoption by the Puritans of England, has come to be known as puritanical—strongly affected New England life and still colors the views of many communities that oppose games and theatricals and pleasant reading. But such great changes have been wrought in modern life by the factory system and the consequent development of industrial cities and strong labor unions, that we find large numbers of civic and industrial experts who now maintain that organized recreational activities are among the most important needs of society. What is your view on this matter? Try to decide by determining in which of the following ways you regard plays, games, music, story-reading, and other pleasant leisure pursuits of children and adults. Are these activities

1. Instruments of Satan, or
2. A means of keeping people out of mischief, or
3. A means of keeping them healthy mentally and physically, so that they can work harder and more efficiently, or
4. Activities which are fully justified merely by the enjoyment which they afford?

Increased enjoyment for masses in democracies.—The answers of different readers will vary according to their temperaments and their training, but the answers of the great democracies of Europe and America are tending more and more in the direction of the fourth conception; namely, that increased happiness for the multitudes in this world is the great aim of the democratic governments, and that increased leisure and the means of enjoying it are important and worthy contributors to this happiness. As Sir Auckland Geddes said, in a notable address in which he interpreted the outcomes of the World War, there is "a realization of the aimlessness of life lived to labor and to die, having achieved nothing but avoidance of starvation and the birth of children also doomed to the weary treadmill."

Historical view. *Influence of Industrial Revolution, humanitarianism, and democracy.*—If space permitted, it would be instructive to examine carefully the influence of three great social movements in propagating a belief in more enjoyment of more leisure by more people. These movements and their influence may be briefly described as follows:

1. *The Industrial Revolution developing from the growth of the factory system.* In England, through the invention of the steam engine and automatic machinery for spinning and weaving, this movement developed rapidly between 1792 and 1830; in America it had its initial rapid development between 1830 and 1860; in Japan it began late in the nineteenth century; in India it appeared only very recently; and in China it promises to be the great development of the immediate future. Everywhere one effect of the development of the factory system is eventually to create labor organizations which gradually attain great power. One of their first and most insistent demands is for shorter working hours or, conversely, for increased leisure and means of enjoying it.

2. *Practical humanitarianism.* One of the most recent notable examples of the interest of practical humanitarians in the

leisure pursuits of the masses is found in the social settlements and recreational centers. Speaking of the function of these, Jane Addams, famous founder of the Hull House settlement in Chicago, says:

> We have no sense of responsibility in regard to the pleasures of young people, and continually forget that amusement is stronger than vice and that it alone can stifle the lust for it. We see all about us much vice which is merely a love for pleasure "gone wrong"—the illicit expression of what might have been not only normal and recreative pleasure but an instrument in the advance of higher social morality.

3. *Democratic government for the people.* This is the third historical factor in developing an increased sentiment in favor of more harmless leisure fun for all. This sentiment arises naturally from the conception of a democratic government as one "of the people, by the people, for the people." In its operations for the people, in its efforts to increase the happiness of the multitudes, democratic governments have reduced the hours of labor in many cases and have organized recreational opportunities, which may vary from the small playgrounds of congested tenement districts to the great state and national parks, where the poor are privileged to roam at will in wonderlands that excel the private hunting preserves which were formerly the exclusive right of the noble and wealthy.[1]

Democratic schools aid in training all for recreation.—Thus we see that great facilities for the enjoyment of leisure are no longer considered the special prerogative of the favored few who, throughout history, have always especially esteemed them, but are being rapidly developed everywhere in democratic countries to increase the happiness of the multitudes. In this democratic work the school plays an important rôle in introducing pupils to many sources of enjoyment and in giving them recreational skills for enjoying reading, music, games, etc.

[1] Write to the Department of the Interior, Washington, D.C., for its portfolio of national parks, in order to see their possibilities.

Section II. General Precautions for the Teacher

Teacher needs correct temperamental attitude toward recreation.—The first essential of a teacher who expects to succeed in aiding the school in its program for developing pupils along recreational lines is to possess a favorable attitude toward enjoyment, toward fun for fun's sake. To secure this favorable attitude three precautions are important: (1) to avoid puritanism; (2) to avoid "highbrowism"; and (3) to respect individuals' varied methods of enjoyment.

1. **Avoid puritanism.**—Obviously, if the teacher's attitude toward fun is puritanical, if she regards plays and games and pleasant reading as reprehensible, she cannot sympathetically or successfully train pupils along recreational lines.

What enjoyments are harmless?—In order to attain a balanced moral attitude toward enjoyment, it is desirable to ascertain what we mean by the term "harmless," which we have used in our chapter title. For a number of years I used the term "noble," which I had derived from another author, instead of the term "harmless." Then in class discussions the question arose whether the enjoyment of playing tennis or reading "Treasure Island" could be called noble. We concluded that this term was not very useful for our purpose, and changed it to "harmless enjoyment." After I had used this for about ten years, a professor criticized it as being merely negative, and asserted that negative propositions are "no good." This bowled me over at the time, but after a while I recalled that most of the Ten Commandments are negative ("Thou shalt not steal" etc.); so I decided that since this remarkable moral code had been so useful for centuries, we should be justified in keeping the negative term "harmless" in our thinking about enjoyment. Moreover, it is easy to point out that we have a big positive civic point in our striving to increase greatly the recreation and enjoyment of life experienced in this world by the masses. On the negative side we have merely to see that the recreational activities do not interfere with the at-

tainment of the other broad social aims of the school; namely, (1) good health, (2) good will, and (3) social service (business service, home service, and civic service).

Recreation has positive hygienic and moral-service values.—For those, however, who are interested primarily in serious hygienic and moral-service problems, it is easy to show that recreation positively contributes to improve human life along these lines; that great leaders in medical practice, Y. M. C. A. work, civic welfare, and industrial efficiency lend their aid to the development of recreation in many ways. As Jane Addams suggested in the quotation above, harmless enjoyment may not only give normal and recreative pleasure but may be also "an instrument in the advance of higher social morality."

2. **Avoid "highbrowism."**—This heading recalls the second feature in a teacher's favorable attitude toward recreation. Possibly some of you do not know what "highbrowism" is. You may have a clearer notion, however, after you read the quotations which are given below and which depict the baneful effect of highbrow tendencies in drying up one's sources of sympathetic enjoyment.

Highbrow musician's musical miseries exceed her joys.—The joy-killing effects of too much technical training in music are humorously described by Percy Hammond, formerly the clever dean of Chicago dramatic critics, in an editorial which he has entitled, "The Joys of Mediocrity." In it he writes of an acquaintance, "an eager lady who, proficient in the art of music, seeks her happiness through that medium." Yet so thoroughly trained is she in this art that she sits through most concerts "in gloomy disapprobation."

> Even her own endeavors to reproduce the masters do not always please her, and so the miseries of her musical existence far exceed her joys.
>
> This lady is a frequent patron of the theater. Of the drama she knows enough to find her way about, to look for her favorite authors and actors, and to attend them when they exhibit in this vicinity.

Her taste in the matter, however, grades with that of one who in music would be moved by the specious measures of "You Made Me Love You, and I Didn't Want to Do It." I saw her the other evening at a performance of "A Perfect Lady." Now "A Perfect Lady," despite its apparent effectiveness as an amusement, is not a good play. Irving Berlin or Gus Edwards, dredging the depths of sound, never dug up a product so hopeless musically as "A Perfect Lady" is dramatically. Yet my friend sat through its progress entranced. She was as happy as the most tainted wether of the flock. Her childlike raptures at each obnoxious discord were delightful to behold. Vanished was her recital look of bitter yearning, gone the discomfort and despair. I learned upon inquiry that she invariably found happiness in the theater. "Peg o' My Heart" fascinated her, as did "Pygmalion" and "Potash and Perlmutter" and "The Legend of Leonora." Yet for the art and the pseudo-art of the theater which contribute so much to the joy of her living she has the mild contempt of an expert in another art whose disappointments for her outnumber its fulfillments.

Too refined a taste may bring distress.—A very similar interpretation of the opportunities for enjoyment in a great city, and of the limitations resulting from too great refinement of one's artistic taste, was written by another noted Chicago journalist and observer of human nature, the late B. L. Taylor (B. L. T.). The opening lines are

> I met a friend of lofty brow—
> As lofty as the laws allow;

and in the first stanza he describes "the recoil" of his friend from the realms of highbrow "litrychoor" to the cruder reading of simple folk. In the second stanza the friend's similar recoil is depicted in the art of painting, and finally, in the last stanza, he is shown finding pleasure in the plebeian motion-picture theater instead of enduring being bored by classic plays.

Most persons would rather smell a rose than analyze a thistle.—These satires on "highbrowism" from the pens of noted and well-educated journalists and observers of the recreational life of a great city prepare us to understand one definition of a high-

brow as a person who would rather analyze a thistle than smell a rose. There is little doubt that most persons, however, would get much greater joy from smelling the roses of life than from analyzing its thistles. While we must make some allowance for the humorist's license in Taylor's lines about good taste's bringing distress, we must admit that the "joys of mediocrity," of which Hammond wrote, offer far greater and surer possibilities in increasing the harmless enjoyment of leisure by the multitudes. Hence in arranging to introduce pupils to greater sources of enjoyment, we shall do well to appeal to the common instinctive interest in rhythm, rime, melody, simple harmony, color, story, action, competition, and humor, instead of emphasizing the enjoyment of technique such as is involved in the study of structure, composition, and technical analysis.

3. **Respect individuals' varied methods of enjoyment.**—Our final requirement in a teacher's correct attitude toward recreation is that she regard sympathetically the great differences in the recreational tastes of individuals. Owing to inborn qualities one individual may be decidedly lacking in the enjoyment of music and poetry, but be naturally very fond of thrilling stories and competitive games; while his brother, with the same education, may be very fond of music, poetry, and quiet reading, but abhor competitive games. It is obviously absurd to try to force one of these persons to find his enjoyment in the same manner as the other. Even when different persons are enjoying intensely the same objective situation, such as a poem, or a novel, or a song, or a symphony, or a football game, or a golf tournament, they may enjoy very different features of it.

Seven methods of enjoying a poem.—This fact may be illustrated by the varied reactions of different persons in reading the following verses[1] by B.L.T.

[1] These verses by Taylor are reproduced from "A Line o' Verse or Two," by the kind permission of the publishers, the Reilly & Britton Co., Chicago.

WHY?

By Bert Leston Taylor

Why, when the sun is gold,
The weather fine,
The air (this phrase is old)
Like Gascon wine;—

Why, when the leaves are red,
And yellow, too,
And when (as has been said)
The skies are blue;—

Why, when all things promote
One's peace and joy,—
A joy that is (to quote)
Without alloy;—

Why, when a man 's well off,
Happy and gay,
Why must he go play golf
And spoil his day!

I find that different readers may enjoy any of the following aspects of these verses: (1) the general suspense and expectation created by the "Why"; (2) the suggestion of a brisk autumn day; (3) the color effects of the foliage and sky; (4) the parenthetical phrases by which the author pokes fun at his own technique in writing jingle; (5) the gross humorous suggestion that golf is a foolish game; (6) the subtle humorous suggestion that the golfer has spoiled his day by poor playing; (7) the idea of the futility of striving for enjoyment and losing it, instead of easily enjoying the simple things close at hand.

Summary concerning teacher's attitude.—Thus we have seen how the teacher should (1) avoid puritanism, (2) avoid "highbrowism," and (3) respect individuals' varied methods of enjoyment, if she is to succeed in fully using the school's recreational opportunities, to which we shall now turn our attention.

Section III. General View of the School's Recreational Opportunities

School opportunities for recreational training.—The principal opportunities for training pupils in elementary schools for increased enjoyment of leisure are along the following lines: reading, music, sports and games, dancing, contemplation of beauty, curious observation of nature, contemplation of human nature and society.

Teacher's recreational services to the pupil. *Introduction; arousing interest; giving recreational skills; habituation through frequent pleasures.*—The service which a teacher may render a pupil in each of these lines will vary with the pupil's previous training and with the subjects concerned. In general the teacher's services may be classified as follows:

1. Introducing the pupil to certain enjoyable activities, or forms of recreation.
2. Arousing his interest in these activities.
3. Giving him the necessary recreational skills.
4. Providing sufficient pleasurable opportunities for each recreation, so that it becomes a specific habit of harmless enjoyment on the part of the learner.

1. **Introducing the pupil to recreational opportunities.**—We may illustrate the first of these services by some such game as tennis or golf. Some persons are so ignorant of these games that they do not even know they exist; while other persons may have observed them, but never had the pleasure of taking part. In the case of golf many uninitiated observers consider it a silly game until they are introduced to it by being given a chance to play. Frequently after playing only a few holes, these same scoffers become confirmed enthusiasts, so intent do they become upon making a good score.

2. **Devices may be necessary to arouse interest.**—For other players, however, a mere introduction is not sufficient—interest must be aroused by some device such as arranging competitive

matches. For instance, I belonged to a golf club in which the men could not get their wives to show much interest in the game until competitive tournaments were arranged for the ladies; whereupon many of the latter became enthusiastic players.

3. **Recreational skills early acquired open up avenues to varied enjoyments.**—Giving pupils the necessary skills sometimes calls for very expert teaching, as exemplified in the case of pupils who have difficulty in acquiring skill in silent reading. Thus in the case of Grace, described on pages 139–140, the child was very fond of stories and begged her mother to read to her, but was so lacking in skill in silent reading herself that it took many weeks of special training to prepare her to read easily and silently the pleasant stories adapted to her grade. I once observed a very romantic country girl of sixteen struggling to read a simple love story called "Dick's Sweetheart." Day after day she would pick up the book and laboriously pronounce word after word. So difficult was the task, however, that she usually desisted after mastering a few pages, in spite of her craving to know the further developments in the romance. In the case of reading, music, sports, games, and dancing the recreational skills are frequently difficult to acquire, but, once attained, they pave the way for many hours of harmless enjoyment. Hence in childhood and adolescence it is important to develop the pupil's skills along these lines.

4. **Habituation through frequent pleasurable association.**—The final recreational service of the teacher to the pupil is the providing of sufficient pleasurable opportunities so that the pupil forms the habit of indulging in each form of recreation that may prove congenial to him. The difference between this service and that of giving merely the necessary skill is demonstrated in the case of pupils who learn to sing in school but at the same time learn to hate music; or the pupils who learn to read fluently but come to regard literature as a form of punishment. The rendering of this final service toward increasing pupils' recreation requires, then, that the teacher should maintain a spirit of rec-

reative pleasure in each leisure activity and give the pupils such frequent experiences that they habitually reach out for further contacts with favorite authors or musical performances or games or beautiful things or the fascinating phenomena of nature and social life.

Section IV. Details concerning Various Lines of Recreation

A. *Reading for Fun*

Wonderful joys in the world of books.—In spite of the fact that pleasant reading constitutes the most frequent and convenient leisure pursuit of many Americans, there are many persons who miss the joys and thrills that are so near at hand, because they have failed to find them or lack the necessary skill to avail themselves of them. The great recreational loss suffered by such persons is best appreciated by one who has drunk deep of the pleasures of fiction, poetry, and other forms of literature. Think of the thrills that children have missed who have never read the stories written by the master romancers, from Homer to the modern weavers of fascinating tales. An appreciative suggestion of these pleasant experiences of childhood is given in the following poem by B. L. Taylor, in which his little daughter speaks to him wistfully of a book she has just completed. In order to test your knowledge of good stories I shall omit the title of the poem, which is the name of the book, and let you see if you can guess it.

Comes little lady, a book in hand,
A light in her eyes that I understand,
And her cheeks aglow from the faery breeze
That sweeps across the uncharted seas.
She gives me the book, and her word of praise
A ton of critical thought outweighs.
"I've finished it, daddie!"—a sigh thereat.
"Are there any more books in the world like that?"

No, little lady. I grieve to say
That of all the books in the world today
There 's not another that 's quite the same
As this magic book with the magic name.
Volumes there be that are pure delight,
Ancient and yellowed or new and bright;
But—little and thin, or big and fat—
There are no more books in the world like that.

And what, little lady, would I not give
For the wonderful world in which you live!
What have I garnered one half as true
As the tales Titania whispers you?
Ah, late we learn that the only truth
Was that which we found in the Book of Youth.
Profitless others, and stale and flat;—
There are no more books in the world like that.

Can you guess the name of the book about which this poem is written? My son, at the age of ten, succeeded in two guesses. First he said "Tom Sawyer," of which at that time he was reading a copy over and over. His second guess, however, was correct. In my classes to which I have frequently read the poem, a common guess has been "Alice in Wonderland," owing to the fact that a little girl is speaking. If you want to know the correct answer look at the note on page 480. For our educational purposes the poem points out the wonderful joys of the world of books to which we are ambitious to initiate more pupils. To the means of doing this we shall now turn our attention.

Book lists. *Make a local reading list for each grade.*—The first problem in organizing the recreational reading of any group of pupils in any community is to make a list of suitable books which the community can afford. In some wealthy city communities this list knows no financial limits; in some poor, isolated communities comparatively few books can be provided. One of the neatest arrangements that I have seen is the Toledo, Ohio, scheme of giving in each grade to each pupil a small card

Toledo Public Schools

and

Toledo Public Library

Home Reading List

Rules for Drawing Books from the Public Library Children's Room

1. The date stamped on card and date slip is the date the book is due.

2. Books from the Children's Room may be kept two weeks and renewed for two weeks longer.

3. A fine of two cents a day is charged for each book kept overtime.

4. Two books may be taken on a card.

5. Children who can write their names may have a borrower's card. We have books for the little children as well as the older ones.

6. Please report change of residence or a lost card immediately.

7. A fine is charged when a book is carelessly handled.

8. Clean thoughts, clean faces, and clean hands will help you to enjoy and take care of good books.

9. The children are expected to be quiet and orderly around the building as well as within it.

10. Do not lend your card.

SEVENTH GRADE

Aldrich	Story of a Bad Boy
Altsheler	Young Trailers
Atkinson	Greyfriar's Bobby
Bolton	Poor Boys Who Became Famous
Borup	A Tenderfoot with Peary
Bosher	Mary Cary
Bullen	Cruise of the Cachalot
Clemens	Huckleberry Finn
Clemens	Tom Sawyer
Cooper	Last of the Mohicans; illustrated by E. B. Smith
Davis	Boy Scout and Other Stories
Eggleston	Hoosier Schoolmaster
Gaines	The Village Shield (Little Schoolmate Series)
Gilbert	More than Conquerors
Grahame	Cambridge Book of Poetry
Greene	Handicapped
Hagedorn	Boys' Life of Roosevelt
Hay	The First Hundred Thousand
Holland	Historic Adventures
Irving	A Legend of Sleepy Hollow
Keller	Story of My Life
Lange	Silver Island of the Chippewa
London	White Fang
Loughead	The Abandoned Claim
Masefield	Jim Davis
Meigs	Master Simon's Garden
Nicolay	Boy's Life of Lincoln
Nida	Story of the World War
O'Brien	Outwitting the Hun
Paine	Fighting Fleets
Parkman	The Boys' Parkman
Parkman	Heroines of Service
Pier	Young Plattsburgers
Pollock	Wilderness Honey
Porter	Ransom of Red Chief
Pyle	Jack Ballister's Fortunes
Pyle	Men of Iron
Rice	Mrs. Wiggs of the Cabbage Patch
Roosevelt	The Rough Riders
Seton	Lives of the Hunted
Stanley	How I Found Livingstone
Stevenson	Treasure Island
Tappan	Little Book of the Flag
Wallace	Grit A-plenty
Williams	How It Is Done

FACSIMILE OF A READING-LIST CARD

containing the names of forty-five books adapted to the grade and circulated by the public library. A full-sized facsimile reproduction of each side of the seventh-grade card is shown on page 479. The cards are of durable, stiff cardboard of varying soft colors, a different color for each grade. To show the possibilities of such recreational reading, even in the first grade, we give on page 481 the contents of the first-grade card.

A clever first aid to makers of reading lists.—The most cleverly arranged reading list that I have seen is one for high-school pupils. It is entitled "The World of Books: a Guide to Reading for Young People in which may be found Volumes of Many Kinds both Grave and Gay." It was compiled by M. J. Herzberg of the Newark, New Jersey, High School. The pupil's attention and interest are especially aroused by the novel headings appearing in black type with half a dozen or more books under each. Sample headings are "On the Wings of Fancy—Tales of Imaginary or Unknown Lands," which initiates the freshman first-semester list; "The Humor of Things"; "Adventures on the Briny Deep"; "Dogs and Other Animals"; "Books that Girls will Enjoy"; "Soldiers of Fortune—in War, Commerce, and Mankind's Service"; "Pleasant Tales of Olden Days"; "If you read these Books you will receive Extra Credit in Other Subjects: 'Strange Tales of Many Lands told in Cunning Verse'; 'Fun and Frolic—at School and Elsewhere.'" It is fascinating just to see the author's ingenuity in devising a seemingly endless list of such attractive rubrics. He further divides the books into fiction and nonfiction, giving under each a list for each semester of each high-school year. So unusual is this list, so novel and numerous its virtues, that it is a remarkable first aid to the busy teacher who is confronted with the problem of making a reading list for the upper grades or for high-school classes. (To secure a copy, send thirty cents to the Palmer Company, 120 Boylston St., Boston, Massachusetts.)

Note. The name of B. L. T.'s poem on page 477 is "Treasure Island." Titania, who is mentioned in the last stanza, is queen of the fairies.

FIRST GRADE

Adelborg	Clean Peter
Bannerman	Little Black Sambo
Betts	Favorite Nursery Rhymes
Bingham	Animals' Trip to the Sea
Bingham	Animals' Rebellion
Blaisdell	Mother Goose Children
Braden	Little Book of Well-Known Toys
Brooke	Johnny Crow's Garden
Brooke	Johnny Crow's Party
Brooke	Old King Cole
Caldecott	Picture Books
Coe and Christie	Story Hour Reader, Book I
Cox	Brownies: their Book
Crane	Mother Hubbard Picture Book
Crane	Red Riding Hood's Picture Book
Crane	This Little Pig Picture Book
Fox	Indian Primer
Free and Treadwell	Reading Literature, Book I
Garnett	The Muffin Shop
Greenaway	Marigold Garden
Greenaway	Pied Piper
Greenaway	Under the Window
Grover	Overall Boys
Grover	Sunbonnet Babies
Harris	Eugene Field Reader
Harrison	The Rhyme of a Run
Lear	The Jumblies
Lucas	Four and Twenty Toilers
Mother Goose	Mother Goose (illustrated by Greenaway)
Mother Goose	Mother in Silhouette (edited by Buffum)
Mother Goose	Mother Goose Melodies (edited by Wheeler)
Murray	The Child at Play
Perkins	Dutch Twins Primer
Potter	Benjamin Bunny
Potter	Tale of Peter Rabbit
Robinson	At the Open Door
Stevenson	The Child's Garden of Verses
Stoney	The Old Woman who Rode on a Broom
Sturgis	The Toys of Nuremburg
Sturgis	The Train Scrapbook
Weatherby	Book of Gnomes
White	Pantomime Primer
Whitney	Bedtime Book
Welsh	Nursery Rhyme Book
Wiley	Mother Goose Primer
Wright	Jolly Mother Goose Annual
Wright	Real Mother Goose

ADAPTATION OF A READING-LIST CARD TO THE NEEDS OF THE FIRST GRADE

Standards for listing books. A pupil's word of praise.—The principal guide to follow in choosing books for the list of any grade is the interest of the pupils. As B.L.T. said of the girl in the poem quoted above, "Her word of praise a ton of critical thought outweighs." Several investigations have been made of these reading interests of pupils from which we may derive notions as to how these interests change with age. These investigations are listed in the bibliography at the end of this chapter. In arranging the books according to grades the difficulty of the vocabulary and sentences will also be considered. It would be interesting to note as the years go by, and pupils in the lower grades have fuller and fuller reading experiences, whether books formerly suited to a higher grade will find a place in a lower grade. In the case of upper-grade reading this has already come about, so that we find there "Treasure Island," Poe's "Tales," and other classic writings which formerly first appeared in high-school lists.

Reading lists in content subjects.—Extensive opportunities for recreational reading are found in some of the content subjects, especially in geography, history, and civics. The most notable examples of lists in the last-named subject are those found at the ends of the chapters in H. C. Hill's "Community Life and Civic Problems."[1] (These we have discussed on page 245.) Many of the elementary-school history texts contain lists of historical fiction at the ends of the chapters.

Coöperating with the public library.—In making the listed books accessible to pupils, coöperation with the public library is an important factor. Frequently the public library furnishes sets of books to the school for a school library, or even for room libraries. In the latter case competent children serve as librarians in making charging cards, circulating the books, collecting fines, etc. In one city the board of education furnished the money for a selected list of books which the library then purchased and handled.

[1] Ginn and Company, 1922.

Familiarizing the teachers with the world of books.—It frequently happens that the teachers of a school in which a recreational reading program has been inaugurated prove to be unfamiliar with the books listed. Obviously this condition needs immediate remedying through stimulating each teacher to secure a sympathetic knowledge of the books listed for her grade. Unless the teacher is a very lame reader (as some unfortunately are) or is entirely uninterested in reading, it should not take her long to become acquainted with the necessary forty or fifty books. In Youngstown, Ohio, the public library furnished teachers with descriptive notes on each book, of which the following is a sample:

LITTLE WOMEN

For fifty years "Little Women" has enjoyed and been fully worthy of an immense popularity. In thousands of homes Meg, Jo, Beth, and Amy are household favorites. Miss Alcott wrote this story out of her own family experience. There were four "little women" in her own home, and she was "Jo." While the story does not follow the actual history of her own family, their struggles with poverty and their beautiful home life are well portrayed. The spirit of the whole book teaches service for others. Besides the four March girls, there is Laurie, the grandson of old Mr. Laurence, who is Jo's especial chum. The incidents in the story are very natural—Beth's shyness, which she overcomes to make an old man happy, and her rapturous joy over the gift of a piano; Amy's humiliation when, for breaking a rule in school, she is whipped and made to stand in front of the class; Jo's dreadful remorse over the temper which so nearly results in Amy's death; and many more of like character. The first part of the book closes with the beginning of Meg's romance with John Brooke, Laurie's young tutor. The second part of the book shows us Meg's marriage and her attempts at running a model home. Many laughable mistakes occur. In time two wonderful twin babies are born to them, and there are funny incidents concerning Meg's attempts to have "model" children. No girl but mourns over Jo's refusal of Laurie or is quite reconciled to her marriage with Professor Baer, kind and good as he is. Beth's death and Amy's happy marriage with Laurie round out the lives of the "little women." They

are grown up now, and the book ends with their reunion at Plumfield, which old Aunt March has willed to Jo. The story is not great because of its literary style; it is because it is so "human." It touches the heart and holds a place, unique in children's literature, which it will never lose.[1]

Interesting the pupils.—Some pupils will need no special stimulus to read the listed books—their natural interest in reading prompts them sufficiently. Others will take sufficient interest merely because it is a class exercise—merely through imitation. Some will need artificial stimulation, such as that afforded by certificates, bookplates, requirements that a certain number of books be read each year, etc. By the time we reach this group in our thinking, we must raise the general question which we took up on page 473 concerning the desirability of trying to force a person to enjoy some particular form of recreation. After we have introduced the natural nonreader to the world of books and he refuses to care about it, we violate one of our fundamental recreational principles if we keep nagging him to further efforts. To be sure, in order to give him sufficient practice in silent reading, so that he may acquire the skill needed for practical purposes, we may continue our instruction as described in the chapter on silent reading; but for the purpose of increasing his enjoyment of leisure, our efforts could be spent more profitably along other lines.

Devices for arousing interest in individual books.—The skilled teacher will frequently introduce pupils to individual books by special devices for arousing their interest. Among these devices are the following:

1. *The continued-story device.* In this case the teacher reads the book to the class until she reaches a thrilling point, and then stops, with the suggestion that the pupils may read the continuation themselves.

2. *Contagion devices.* The popularity of books is contagious, as demonstrated by the brief but great popularity of new "best

[1] *Elementary School Journal*, January, 1919, pp. 325–326.

sellers" or by the strong social demand for an old book when some occasion revives public interest in it. Fashions in reading books that others are reading are as potent in some circles as fashions in wearing clothes or arranging the hair or dancing are in others. Consequently in school, if popular pupils are permitted to talk of the books they like, a fashionable interest may be created through imitation. After a run is started on a book, not to have read it may make some feel as uncomfortable as not to know the standing of the local baseball team or the latest trick in jumping the rope or playing jacks.

3. *Appealing to individual tastes.* Our incident of the boy who cared only about books concerning horses and other animals (described on page 369) illustrated the possibilities of the teacher's arousing the reading interest in individual books by bringing appropriate ones to the attention of each pupil. Casual occasional conversation about his favorite topics, with each reader of eccentric tastes, tactful reference to certain books, placing the book in his hands, even opening it to an attractive picture or incident, are details to be considered in this connection.

Class reading of selected books.—Sometimes whole books are read in class in place of the reading of short selections from school readers. Thus a fifth-grade class read Howard Pyle's "Men of Iron," and a seventh-grade class read W. H. Meadowcroft's "Life of Edison." Such practice is usually effective in introducing many pupils to a more advanced type of reading than they would undertake individually. Some of the class reading will be silent and some oral, according to the appropriateness of the material.

Poetry. *Contrast of happy and unhappy early experiences.*—By means of effective oral reading some teachers succeed in introducing many pupils to the enjoyment of reading poetry. One fourth-grade teacher gave pupils copies of a few selected heroic or dramatic or sonorous poems. Each pupil made his own "poem book," with a manila-paper cover, and pasted the poems

in it. All the poems were read effectively by the teacher and selected pupils, and each child was asked to learn a poem of his own selection and be able to recite it. I remember how my son, who happened to be in this class, regaled me one Sunday, as we were walking in a Chicago park, with

> It was the schooner *Hesperus*
> That sailed the wintry sea.

This incident recalled to me my own meager and disappointing early experiences with poetry. In childhood these consisted of memorizing certain moralizing "gems" such as "Be good, sweet child, and let who will be clever," and of certain tearful home scenes preparatory to reciting similar verses in Sunday School. In college, after several years of technical training in the natural sciences, I decided to "broaden myself" by electing a course entitled "Introduction to English Poetry." Again I was tortured, this time by a professor who spent the time with metrical analyses and nonsense syllables. Some of the students resorted to drawing cartoons of the professor, writing limericks, and other devices to pass the weary class time. Not until I was thirty-five and had a nervous breakdown, which forced me to find some recreations while hibernating in a sanitarium, did I discover the leisure possibilities of poetry. I found by chance the poetry section of a weekly review, a section then edited by the talented and lamented war poet Joyce Kilmer, who, it seemed to me, was unusually happy in selecting from contemporary verse the most pleasing of poems.

Buying poetry collections for a boy.—Having in mind my own early painful experiences I decided to try to experiment with my son's poetry reading to see what might be done. Following his pleasant fourth-grade experiences, we bought him a book called "Four American Poets" (Bryant, Longfellow, Whittier, and Holmes). This book contained a mixture of biography and selected poems. The boyhood of the four poets aroused some interest, as did also some poems that had well-defined rhythm or

humor. The boy said he didn't like some of Bryant's poems because "they had no swing to them," but he laughed in glee over some of the humorous verses by Holmes. Meanwhile I kept on the watch for a collection of poems for children, and finally purchased a volume edited by Kate Douglas Wiggin. This proved to be much more successful in arousing interest than the "Four American Poets." The long humorous narrative poem by Cowper entitled "The Diverting History of John Gilpin" was read and re-read. The adventure poems were early favorites; while at the age of twelve the boy even hit upon Southey's endless string of descriptive terms in the "Cataract of Lodore" and pestered his mother by following her around the house and reading to her the lines

> Rising and leaping,
> Sinking and creeping,
> Swelling and sweeping. . . .

Finally, in the seventh grade he was fortunate in being under a teacher, Miss Edith Shepherd, who organized a series of lessons on ballads, such as "Lochinvar," "The Wreck of the Hesperus," "Horatius at the Bridge," and "The Burial of Sir John Moore." Many of these were read, and out of a select list of twenty-five ballads there were only two or three with which the boy's previous poetry-reading had not made him familiar.

Devices for teaching ballads.—The devices used by Miss Shepherd in teaching these lessons is suggested by the following assignment:

THINGS YOU MAY DO WITH BALLADS

I. Make a card for each ballad.
II. Prepare to read to class one which you especially like.
III. Prepare to give one in pantomime or dialogue reading, with two or three classmates, keeping it secret from the rest.
IV. Memorize and recite to the class a ballad approved by the teacher.
V. Choose one for a class play.
VI. Guess from the teacher's reading of selected lines which ballads she is quoting.

Poetry-scale measures features that interest pupils.—In order to ascertain what types of poems are appropriate in developing the recreational habits of pupils of various ages, Professor Allan Abbott devised graded poetry tests which contain such assignments as the one on the opposite page. This assignment contains Amy Lowell's poem "Sea Shell," and three other versions which lower the poetic quality of the original. Abbott says of these:

> In lowering the poetic quality . . . of each poem the attempt has been made in one version (called hereafter "sentimental") to falsify the emotion by introducing silly, gushy, affected or otherwise insincere feelings; in another version (the "prosaic") to reduce the poet's imagery to a more pedestrian and commonplace level; in a third (the "metrical") to render the movement either entirely awkward or less fine and subtle than the original. (**10**: 103)

From his experiments with these tests Abbott reached the following conclusion:

> Vigorously expressed feeling is the demand of the middle years, —the upper grades, high school, and early college. . . . Poetry of a vigorous, unrestrained, and emotional type ought to meet their moods. . . . Much work needs to be done in finding and in adjusting to the course of study more good, vigorous verse in which the emotions are not too subtle and complex, not too individualized, and not in any case forced for the occasion . . . by making use of the ballads, of Burns, of Scott, of the best of Byron, of Kipling, of Vachel Lindsay, in comparison with the study, say, of the "Golden Treasury" or Milton's "Minor Poems." (**10**: 125)

Favorite poems for children of elementary-school age.—The heading of this paragraph is the title of an investigation conducted by Miss Cora King in ten American cities and published in the *Teachers College Record* for May, 1922. From the results a course of study in poetry is outlined, which should prove quite helpful to elementary teachers.

Elements in teacher's skill in teaching poetry.—In concluding our discussion of the problem of introducing pupils to the

Read the poems A, B, C, D, trying to think how they would sound if read aloud. Write "Best," on the dotted line above the one you like best as poetry. Write "Worst" above the one you like least.

Set 3. To a Sea Shell

A (. . . . .)

Sea Shell, please sing me a song
Of ships and sailor-men;
Of strange kinds of birds and trees
On the Spanish Main:
Of fish and seaweed in the sea,
And whatever creature there may be.
Sea Shell, please sing me a song!

B (. . . . .)

Sea Shell, Sea Shell,
Sing me a song, O please!
A song of ships and sailor-men,
Of parrots and tropical trees,
Of islands lost in the Spanish Main
Which no man ever may find again,
Of fishes and coral under the waves,
And sea-horses stabled in great green caves.
Sea Shell, Sea Shell,
Sing me a song, O please!

C (. . . . .)

Tender, tender Sea Shell,
Wilt thou sing me, please,
Of thy happy, happy home
'Neath the tropic trees?
Ah, the coral islands!
Ah, the wondrous fish!
For such a song I'd give thee, dear,
Whate'er a Shell could wish.

D (. . . . .)

Sea Shell, I ask you will
You sing a song, please.
All about the ships and sailors
And the parrots in their tropical trees.
The islands I have read about on the Spanish Main
That no one will see again,
The fish and coral under the wave,
Sea horses that have their stables in caves;
Sea Shell, I ask you will
You sing a song, please.

SAMPLE FROM ABBOTT'S POETRY TESTS

enjoyment of poetry as a means of increasing their harmless enjoyment of leisure moments (for poetry is seldom read by the hour), we may suggest that the following items are important factors in the teacher's equipment for such teaching:

1. A keen enjoyment of simple, well-defined rhythms, similar to the enjoyment of rhythmic dancing or marching.

2. Sympathy with the common human interest in adventure, romance, humor, rime, and jingle.

3. Skill in full-toned rhythmic phrasing and oral reading of poetic lines.

4. Intimate knowledge of the varied enjoyment values to be found in a few select poems adapted to her grade, plus specific skill in reading these poems so as to impel the listener to experience these values.

Periodical-reading. *Frequent, convenient, and pleasant.*—As a final point in our discussion of preparing pupils for the increased enjoyment of leisure through reading, we may note the possibilities of introducing them to periodical-reading. Among well-educated persons this constitutes probably the most common type of recreational reading. On pages 376–378 we described at some length a teacher's method in introducing upper-grade pupils to newspaper-reading. Similar specific training could be organized with periodicals which appeal especially to the varied wholesome interests of young readers. Their love of stories, their delight in adventure, their enjoyment of pictures and descriptions of strange lands, the joy that many find in what may be included under the general name of "tinkering,"—all these are met and served in good periodical literature. A library table containing these, together with occasional class exercises cleverly devised by the teacher to stimulate pupils to read them, may initiate or develop in many pupils habits of periodical-reading as a pleasant, convenient, and frequently instructive leisure occupation.

Conclusion of discussion of reading for fun.—This concludes our discussion of the most common form of leisure oc-

cupation among educated Americans; namely, reading. We have suggested how the school can surround the pupil with books and magazines, arouse his interest in reading these, and give him such frequent pleasant experiences with them that he will form the habit of reaching out for similar recreational experiences when he leaves school. In an earlier chapter on teaching reading we discussed methods whereby the necessary recreational skill in silent reading might be developed in all pupils. Even with the best of teaching, however, some pupils will remain uninterested in reading as a means of enjoying leisure. There are, however, many other forms of harmless enjoyment, to which we shall now turn for briefer consideration.

B. *Music for Recreation*

Need for songs that are enjoyable.—In order that pupils in school may have more fun with music, the first necessity is the use of songs that are intensely enjoyable,—lilting, haunting melodies, the gems of the art that fascinate people and leave them with a "song in the heart" to lighten the glooms of life. As one of our recent popular songs suggests,

> Tho' the road may be long,
> In the lilt of a song
> I forget I was weary before.

The publication of such collections for elementary schools is pleasingly suggested in the following description of a new series of school music books:

Song material.—In the books of this course the song is paramount. Each volume is a collection of beautiful songs.

The books for the early grades contain a large number of rare and attractive folk songs, people's songs, traditional songs, and naïve songs of the varying moods, experiences, and ideals of childhood.

As the course progresses, simple melodies from great and noted composers are presented, culminating in more varied cultural productions of the masters.

Not dependent upon method.—The plan of each book neither emphasizes nor ignores any particular method. It aims to present beautiful song material which may be used successfully by any teacher with any method.

Fun through listening.—The second provision which is desirable in order to give more pupils more fun with music is the provision of experiences (and even graded practice) in *listening* to enjoyable music. The series of school music books mentioned above brings out this point in the following quotation:

> While the most progressive educators of today believe that singing is essential, they also believe that school music should mean something more than singing. The musical activity common to the greatest number of people is *listening*. Pupils should therefore be taught to listen as well as to sing. They should be taught *how* to listen, in order that they may get additional enjoyment from music. Listening involves instrumental as well as vocal music; the two are closely associated. The pupils' voices furnish the vocal music, the piano and school orchestras furnish instrumental music, and the phonograph furnishes both.
>
> A genuine growth in music means a gradual and progressive development. The songs of this course are selected and arranged so as gradually to lead the pupil to the goal. Running parallel with the songs is a suggested course in music listening.
>
> While the singing and listening courses of the series have reciprocal relations, yet each course may readily be used separately and independently or in conjunction with any other course.

C. *Plays and Games*

Specialized problems.—Except in the kindergarten, plays and games are commonly supervised by special teachers. For the kindergarten teachers valuable special training courses in plays and games are offered in normal schools. Under teachers who have been thus specially trained for supervising games, pupils develop recreational skills and a spirit of play that contrast strongly with the attitudes and skills of pupils who have not enjoyed this favorable instruction.

Example of a survey of plays and games in Cleveland.—A broad social study of the place and organization of plays and games in a school system was made by G. E. Johnson in connection with the survey of the Cleveland (Ohio) schools. It is entitled "Education through Recreation," and considers such topics as the following: a play census of Cleveland pupils; their recreational interests; baseball as much social as physical; baseball for girls; basketball; football; when the school should catch

Courtesy of The University of Chicago Elementary School

HARMLESS ENJOYMENT AT THE KINDERGARTEN AGE

the boy; early appearance of the gang instinct; etc. To such special treatises the reader is referred for details about the games and methods appropriate to each grade. Suffice it to say here that we esteem the development of an interest in play and of skills in many games as among the most valuable additions to one's personal equipment for getting more harmless fun out of leisure time.

Dramatic play recently emphasized.—In many progressive schools dramatic plays, organized and presented by the children, have recently been emphasized. Within a few years we may expect to see published practical manuals that will instruct teachers in the organization of such plays which employ the dramatic talents of the children, delight the assembled school, and give to many pupils skill in this important form of recreation.

D. *Dancing*

A moot problem.—Perhaps the most unsettled problem in organizing leisure training in public schools concerns dancing, since certain organizations and communities are so definitely opposed to it. For example, I heard of one school superintendent who introduced folk dancing into the curriculum and soon was overwhelmed by an avalanche of protests from groups of citizens. He wisely withdrew the subject, but after a safe interval introduced the same activities under the title of "folk games," which aroused no suspicions or objections. In view of the fact that social dancing in America, if taught in the public schools at all, is usually assigned to the high school, we need not discuss it further in this book.[1]

E. *Contemplation of Beauty*

"Life has loveliness to sell."—The possibilities of the enjoyment of beauty are suggested by Sara Teasdale, one of America's leading poets, in the following poem, which was ranked by the *Boston Evening Transcript* among the thirty best American poems for 1916–1917. While you are reading it, phrase it so as to bring to your mind each of the beautiful pictures or moments which your experiences may have prepared you to appreciate.

BARTER[2]

Life has loveliness to sell,
  All beautiful and splendid things,
Blue waves whitened on a cliff,
  Soaring fire that sways and sings,
And children's faces looking up
Holding wonder like a cup.

[1]See the author's "Methods of Teaching in High Schools," pp. 237–238, for further comments on dancing.

[2]From "Love Songs," by Sara Teasdale. By permission of The Macmillan Company.

Life has loveliness to sell,
  Music like a curve of gold,
Scent of pine trees in the rain,
  Eyes that love you, arms that hold,
And for your spirit's still delight,
Holy thoughts that star the night.

Spend all you have for loveliness,
  Buy it and never count the cost;
For one white singing hour of peace
  Count many a year of strife well lost,
And for a breath of ecstasy
Give all you have been, or could be.

Wide range of æsthetic reactions. *Untutored and tutored.*—There is sufficient variety in the experiences of beauty suggested in this poem to appeal to almost every adult's experience and to suggest the wide range of opportunities for enjoying the contemplation of beauty. I hesitate, however, to attempt a discussion of the practical problem of training pupils so as to enrich their enjoyment of beautiful things, since we should be dealing with some of the most elusive and varied of psychological reactions. What is the fascination that lurks in "blue waves whitened on a cliff"? in "soaring fire that sways and sings"? in "scent of pine trees in the rain"? What elements have these experiences in common with "children's faces looking up holding wonder like a cup"? We all know persons who linger delighted with such experiences and long for them when absent. They have needed no tutoring to develop their enjoyment. On the other hand, we find persons who through training have *learned* to enjoy observing certain combinations of color in a sunset or mountain scene or deep-shaded woods—color tones and variations which they would not have distinguished if untrained in color perception. Similarly, many of us can recall how the few simple references to Doric, Ionic, and Corinthian columns in our high-school courses in ancient history created in us the tendency to notice with pleasure these architectural elements in buildings.

Acquaintance courses.—In all the æsthetic arts we find the former school instruction commonly dominated by the same striving for technical skill, the same emphasis on the elements of technique, that frequently dominated the teaching of music. Also, as in music, we find the development of new types of acquaintance courses which seek to enrich a learner's possibilities of contemplative enjoyment without attempting to give

WHY IS THIS PICTURE ("ATALANTA'S RACE") PARTICULARLY SUITABLE FOR A FOURTH GRADE?

him creative or technical skill. In the realm of pictures the organization of such courses is greatly facilitated by the excellent reproductions that have been especially prepared and commercialized for school use.

F. *Curious Observation of Nature*

An example.—The recreational possibilities to be found in the curious observation of birds and animals, trees and flowers, are illustrated by the general popularity of zoölogical and botanical gardens and by many personal examples. For instance, I have a brother-in-law whose interest in woods life has persisted from his adolescent days, spent in the Maine woods, although for many years he has been a business man in large cities in the Middle West. He and his four children, who are from six to

thirteen years of age, find much fun in observing birds, animals, trees, and flowers. Each child has specialized on one of these and, when camping or motoring, is called upon to identify examples from his or her field of specialization. All, however, are learning something about every phase of nature. For example,

WHY IS THIS PICTURE ("THE ANGELUS") NOT SO SUITABLE FOR FOURTH-GRADE CHILDREN AS "ATALANTA'S RACE"?

they all—father, mother, and children—read with great pleasure "The Burgess Bird Book for Children," the only volume among a dozen similar ones that is written in such a story form as to fascinate little children. It is obvious that such training parallels a part of the nature study of the elementary schools, which, in its efforts to train for the leisurely contemplation of the curious in nature, might be dominated at times by a very different spirit from that which prevails in the more cold-blooded training along scientific lines, valuable as the latter is in its proper place.

G. *Contemplation of Human Nature and Society*

Illustrated by Walt Whitman's rapture in crowds.—The recreational pleasures to be found in the contemplation of human nature and society are illustrated by the following portion of a letter written by the poet Walt Whitman to a car conductor with whom he had formed a friendship:

New York, Oct. 9, 1868.

Dear Pete,—It is splendid here this forenoon—bright and cool. I was out early taking a short walk by the river only two squares from where I live. . . . Shall I tell you about [my life] just to fill up? I generally spend the forenoon in my room writing, etc., then take a bath fix up and go out about twelve and loaf somewhere or call on someone down town or on business, or perhaps if it is very pleasant and I feel like it ride a trip with some driver friend on Broadway from 23rd Street to Bowling Green, three miles each way. (Every day I find I have plenty to do, every hour is occupied with something.) You know it is a never ending amusement and study and recreation for me to ride a couple of hours on a pleasant afternoon on a Broadway stage in this way. You see everything as you pass, a sort of living, endless panorama—shops and splendid buildings and great windows: on the broad sidewalks crowds of women richly dressed continually passing, altogether different, superior in style and looks from any to be seen anywhere else—in fact a perfect stream of people—men too dressed in high style, and plenty of foreigners—and then in the streets the thick crowd of carriages, stages, carts, hotel and private coaches, and in fact all sorts of vehicles and many first class teams, mile after mile, and the splendor of such a great street and so many tall, ornamental, noble buildings, many of them of white marble, and the gayety and motion on every side: you will not wonder how much attraction all this is on a fine day, to a great loafer like me, who enjoys so much seeing the busy world move by him, and exhibiting itself for his amusement, while he takes it easy and just looks on and observes. (**2**: 250)

What are the educational possibilities?—The recreation which Whitman describes in this letter furnishes a leisure occupation that many persons greatly enjoy. Just what educational

possibilities it offers I am unable to decide. It may be that it can be developed into the playful reading of biography, current events, books of travel, etc. and the playful puzzling about social problems that is so characteristic of the leisure life of many educated persons. Very likely the same interest in contemplating human nature and society explains the great popularity of motion pictures, whose recreational features have not yet been adequately explored by scientific students of education.

Conclusion of the chapter on harmless enjoyment.—To a considerable extent this chapter has consisted of propaganda to arouse an interest in developing practical recreational programs for giving more harmless fun to more pupils. In this respect it contrasts strongly with other chapters, such as the one on beginning reading, in which a highly developed technique of teaching was described. However, in some recreational lines, such as increased enjoyment of reading as a leisure occupation, great practical progress has already been made. In the next chapter we shall turn to our final type of teaching; namely, civic-moral training, for which we shall have many sample lessons to illustrate the great variety of practical forms of training that schools have devised.

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CHAPTER XV

CIVIC-MORAL IDEALS AND EFFICIENCY

Main points of the chapter.— 1. Examples of civic-moral training may be divided into those giving training in actual behavior and those which merely discuss behavior.

2. Such examples bring out the value of the following factors in civic-moral teaching: insight into social life, skill in solving civic-moral problems, enthusiastic belief and interest in civic welfare, and habits of efficient civic-moral behavior.

3. In studying the psychological factors involved in these we must consider the inborn components of the pupil's character and the acquired components.

4. Some of our best scientific studies of character development concern the native intelligence and moral behavior of the feeble-minded.

5. In the secularized schools of America and France civic-moral courses of study have been developed to replace the older religious-moral instruction.

6. As this civic-moral instruction becomes effective through universal education and universal suffrage, we may anticipate increased improvement in the civic morality of democratic nations.

Sections of the chapter.—Our discussion of the development of civic-moral ideals and efficiency will be divided into the following sections:

I. *Examples* of civic-moral training (p. 503).
   A. Examples of training through *actual behavior* (p. 503).
   B. Examples of training through *discussions* (p. 524).
II. *Psychological factors* in developing character (p. 533).
   A. The *instinctive* elements in character (p. 534).
   B. The *acquired* components of character (p. 543).
   C. Special application to the *feeble-minded* (p. 552).

III. From *religious-moral* to *civic-moral* training in public schools (p. 562).
A. Religious-moral training (p. 562).
B. Civic-moral training (p. 565).

Section I. Examples of Civic-Moral Training

Two types of examples. (*A*) *Actual behavior;* (*B*) *discussions of behavior.*—Again we have a chapter title, "Civic-Moral Ideals and Efficiency," which will need considerable explaining before you will grasp its full meaning. However, every reader has some idea of the meaning of "moral training," which is the central idea in the chapter; so we shall proceed to give several concrete examples of skillful moral teaching, and then take up some of the more abstract problems suggested by the title. Our examples will be divided into two groups: (*A*) those which provide training in actual behavior and (*B*) those which contain merely discussions of behavior.

A. *Examples of Training through Actual Behavior*

1. **A campaign against cheating. Social need for combating graft, deceit, and cheating.**—Ordinary observation of social life reveals that cheating is one of the most prevalent forms of immoral behavior. Many boys and girls cheat in their games; some adults cheat scandalously in cards and golf and other forms of play; frequently politicians graft and cheat the public out of the public money and public benefits in many and devious ways; while dishonest business men abound, from the small grocer who gives unfair measure up to the richest corporation officers who employ talented legal advisers to enable them safely to break the laws and cheat the public. Practically everyone knows what cheating is, and knows that it is considered immoral; yet many have no personal ideals which condemn in their eyes their own cheating, loudly as they may condemn it in others. Such facts show us that we are confronted with a very definite and specific

task in developing in pupils gripping ideals and habits that will cure many of them of tendencies to cheat.

Miss McGuire's account of her seventh-grade drive.—The following account of a skillful drive by a seventh-grade teacher against cheating is one of the finest examples that I have ever known of courageous, patient, persistent, good-natured moral training. It was written by Miss H. E. McGuire of the Chicago public schools, in response to my request in one of my summer classes for descriptions of actual civic-moral teaching.

A CAMPAIGN AGAINST CHEATING

By Miss H. E. McGuire

Pupils' letters acknowledge helpfulness.—The two letters accompanying this paper brought very vividly to me the results of the vigorous campaign against copying which I had waged early in the year. The letters were unsolicited so far as testimony was concerned. They were answers to a letter I had written on the blackboard to all the children on the last day of school.

Chicago, Illinois
June 26, 19—

Dear Miss McGuire:—

I think that I have learned more in this year, than any other year that I have to school. Before I came to your room I would just as soon copy my whole exam as to eat. But after awhile you got talking about honor. At this time I was in trouble at the scouts. I found that if I would work everything out myself it would be much better for me.

Your room has been the nicest room I have been in. I like the class that I am with. X and I have caused a great deal of trouble in the room, but I have never seen a room that every one was perfect. Spelling was my worst study as you know. Geography I liked because the was something interesting to study about.

I will be a Camp —— —— the first two weeks of my vacation, and the rest of the summer I am going to work at my father's office. The next one of our family that will be in your room will be my brother ——. He is as bad as I am so watch out for him. If you get a chance to write me between the 29 of June and the 12th of July write me as we do not get many letters at Camp.

Yours truly

Chicago, Illinois
June 26, 19—

Dear Miss McGuire:—

I think this room has as much as gained two years worth of action instead of one, and I think it is all mostly on your part. I for one was the boy who had much brain work when I came here, partly because in arithmetic I generally depended on some one else for my answer. When I came here you knocked most of it out of me and I can truly say I have not done a dishonest thing this year.

I will show that my steadiness of purpose will serve me well in eighth grade.

I will always remember you as one who helped me along in life. That is to say lifted me a rung on the ladder.

Yours always

Vicious copying: a seventh-grade evil.—I have always felt that children of eleven, twelve, and thirteen ought to realize the evil in deliberately scheming to get the results of a neighbor's work. I know that teachers in the lower grades harp continually on the subject, and yet when children get to the seventh grade the vicious habit persists. I realize there is a difference in copying,—some is intentional, some is not,—but it has always seemed gross and evil to me for big boys and girls to squirm and strain and hide in order that they might see what is written on their neighbor's paper.

September epidemic of cheating.—Early in September I noticed that my class contained a number of children who made a practice of cheating, and I determined to make a strong effort to make it plain to the children what this meant. I conferred with the principal and gave her to understand that if I sent a boy or girl to her on that basis the case was to be especially handled. As it happened, I never had occasion to. Meanwhile the class was one of the worst in that respect I had ever had. I noticed that the daily spelling lesson and the arithmetic problems which the children worked at the blackboard, side by side, were the sorest spots. I was not going to give up the arithmetic board work, for I enjoyed that work very much. The September examinations brought out a perfect epidemic. There were very few exceptions—notes were written and other methods employed.

First talk delayed until October.—Now, at the end of the first month, I spoke for the first time on the subject. It came in among other topics in my talk—whispering, self-control, trustworthiness,

etc. This was the first time I had given the children any idea of what my schoolroom ideals were. I had delayed such a talk for one reason. At the end of the month I feel the children have become acquainted with a teacher's peculiarities and are not so apt to be distracted by them while she is talking. A talk of the sort I want children to hear is wasted if given the first few days.

Review of cases cured many.—I spoke very plainly, but mentioned no names. I told of the spelling lessons I had noticed—the times at the blackboard. I recalled specific instances, so that those who took part might recognize the circumstances and know whom I meant. By this first talk I hoped to do quite a little weeding out. Some children would never again copy in my room, because they would realize I was aware of what was going on—some would be shocked out of it; some scared; some won, because I tried to be as human, as kind, and as firm as I could.

Sore spots left: a particularly bad case.—During the second month I felt a marked decrease in the everyday copying. There were now but three or four sore spots in the room. One of these centered in a boy who wrote one of the letters given on page 504. It seemed to me that he was possessed. He had a hard time in spelling, and he forgot everyone and everything in his effort to get his words from his neighbors. His arithmetic at the board was painful. He felt that such a hard time was before him that he gave up before he began and took all he could get.

Frequent comment continued; cases and principles.—In the meantime I spoke frequently and in as friendly a fashion as I could about the practice, trying always to give the impression that I knew what it was—that it might be common among younger boys and girls, but among seventh graders—no. I often spoke right up when I saw signs: "What do you want, X? The word is ——" (as if I supposed he was looking at his neighbor's paper for the word), or, "Take your seat. You can see his work from there" (when anyone at the board looked right or left). This kept before the class the aim I had spoken of in my talk at the end of the first month—to tend to one's own business, to stand on one's own feet, to take the grade one had earned. Then, too, I spoke often of those who were so absolutely dependable. By this time I had found many who were. I laid stress on the comfort a teacher got from a roomful of children who were trustworthy in the highest degree.

October examinations: still some devious devices.—Finally came the examinations of the second month. I did my part. By various maneuvers I had so seated the class that temptation was reduced to a minimum. I watched, and saw almost no communication. After the examination I said: "I'm going to ask a peculiar favor of you. You know what our ideals are in a situation of this sort, and you have all been trying to attain them. I feel confident that many of us are on the right track, but I want to be in a position to help those that are not. I want you each to hand me a slip of paper on which is one sentence. I want no name or means of identification of any sort. Fold it once. Write on it, 'I know of no communication during the examination,' or 'I do know of communication.'" Out of the forty odd papers twelve or fifteen said there had been communication. My work was far from finished. Some of this might have been innocent, but some I knew was not. The more public I made the disgrace of cheating, the more devious and secret the ways of carrying it on. I knew I would have to reach it through the children themselves.

Pupils describe their clever tricks.—By the third month I had a large background to work on. For instance, one boy and one girl frankly told me, in after-school conversations, of the tricks they had used in the sixth grade. The boy was good in arithmetic, the girl in other things. They traded work. The schemes of children are beyond the shrewdest teacher. They thought the best trick was when one child walked up to the wastebasket and deposited a piece of paper, the next child carrying the valuable scrap back with him. Boys after school entertained me with tales of cheating-exploits. But I could see the point of view was changing. They could not tell me about it and do it this year.

November campaign: "Samurai honor roll."—During the third month I attacked cheating from a new angle. I announced that our roll of honor—mostly for well-behaved nonwhisperers—was to be erased, and a new list enrolled. We often did this—sometimes a roll for spelling, sometimes for punctuation, etc. But this time I wrote the word "Samurai" on the roll board. This was to excite the children's curiosity. When they knew what I wanted, the list would be made. Overnight they found all kinds of information for me, and when they got the impression of nobility, high caste, that I wanted, I told them the roll was elective.

"You have been together for some years. You know each other pretty well; much better than I do. Put on this list the names of those who deserve your respect for their strict interpretation of honesty. Each day we will ballot, and you may be proud to see your name there—put there by your classmates."

There was much excitement. "No fair to count last year!" "Count only this month!" "How will the new people get on?" "I can't decide on just one!"

We concluded to count only this year, and to write three slips of paper, on each of which should be the name of one we knew to be 100 per cent honorable.

Before I allowed the class to make their first choice, I talked very gravely and earnestly to them but just as close to their level as I could. I spoke to twelve or fifteen by name and included all the others by implication, and thanked them for the remarkable change in the room in two and one-half months and especially for the effort all had put forth in this direction—toward a real roll of honor. I spoke again of the great pleasure a teacher feels when her children "fill the bill." Not all of us could get on the roll the first day or first few days. Each child would have three choices. The three children who got the most votes each day would be entered. I warned against making it a popularity vote. I said it might include the whisperers, the noisiest boy,—anyone who had faithfully followed the call on his honor, gum-chewers and all,—but it must not include anyone who still took his grade from his neighbor.

There was a great solemnity and gravity about this whole business. The names went up day after day, just as I would have put them there. The choice at first was almost unanimous, for there are children who always engender respect. In this way I hoped to put a new face on the matter—from proving to me to proving to their classmates. The "Samurai roll" was a fresh fillip.

End of November: roll erased.—When twenty or thirty names were on the list the end of the month had come, when we were in the habit of cleaning all slates, rolls reports, etc., to start fresh with the new month. This obviated the necessity of forcing the children to vote on some who had not yet risen to the occasion. In fact, several blank slips were handed in toward the last.

Front seats and teacher's eye courted.—From now on I took more pleasure in the aspect of the room—no more scrouging around to

escape my eye. The children courted it rather. They wanted front seats! When bad grades came they took them, and worked hard to escape them in future. I could leave my room in the midst of written work and feel that (1) some would not even think of cheating; (2) some might, but would refrain; (3) those who were weak would find scant encouragement.

June letters reveal where seeds fell.—And now in June, when I had forgotten much of it, I received the accompanying letters to show where the seeds had fallen—the seeds of fear, or love, or pride.

Principles of teaching illustrated by Miss McGuire's campaign.—In interpreting Miss McGuire's account of her campaign against cheating, we may note that the campaign had the following general characteristics:

1. It was concerned with actual day-to-day behavior of the pupils; it gave actual practice in moral behavior; and in many instances it actually eradicated certain immoral practices.

2. There was a direct specific attack, instead of vague, indefinite, indirect suggestions.

3. The teacher showed great moral courage in openly attacking the evil that prevailed.

4. Yet at the same time she was good-natured, thus securing the confidence and liking of the pupils.

5. She planned the details of her drive carefully.

6. She had patience to wait until the psychological moment to begin the drive.

7. She was persistent in keeping it going month after month.

8. She varied her devices so as to secure a cumulative effect.

9. She created an ideal in the form of personal beliefs of individual pupils and general public sentiment. Contributing to this ideal were the teacher's obvious belief in it, her own sincerity and squareness, the social approval of the pupil group, the historic *Samurai* symbol and formula, etc.

10. She gave sufficient practice on varied occasions to habituate considerably the practice of honest effort.

11. The results showed the value of the training.

Other examples of Miss McGuire's civic-moral teaching.—Fuller appreciation of Miss McGuire's methods of civic-moral teaching is secured if we realize that the above direct campaign is merely one out of many varied forms of training that she provides. For example, one Saturday when I attended the performance of Drinkwater's "Lincoln" I found Miss McGuire and practically her whole class of seventh-grade boys and girls also there. Between acts they exchanged many comments on the play and doubtless used the experiences later in class in interpreting and appreciating Lincoln's great moral strength and leadership. On another occasion Miss McGuire gave me a description of the manner in which her pupils had dramatized the meetings of our First Continental Congress and had debated some of the crucial questions which arose there, thus getting vivid ideas of some of the civic issues that early confronted our country. Both of these examples would serve admirably to illustrate our later discussion of civic-moral training through the study of literature, biography, and history. Here, however, we are especially concerned with Miss McGuire's campaign against cheating as a remarkable example of the possibilities of developing in school civic-moral ideals and efficiency through actual behavior or practice.

2. **Learning responsibility in a first grade.**—Our second example of civic-moral training through actual behavior is from the work of Miss Marjorie Hardy in the first grade of The University of Chicago Elementary School. This example came to my attention when I was observing Miss Hardy's methods of teaching reading (as described in Chapter V). At the end of the reading lesson, in which the children had been given their first books to keep in their desks, the teacher said:

> Put your markers in your books and close them. Notice how clean your markers are. They will keep clean if you use them only for markers. Each child is responsible for his own book. Do you remember we learned yesterday what "responsible" means? Put them in your desks carefully.

Miss Hardy's account of her methods.—I was so impressed with this practice of teaching first-graders responsibility that I asked Miss Hardy if she would tell me about her system of civic-moral training. She kindly accommodated me by writing as follows:

My dear Mr. Parker:

What I have to say about our civic-moral ideals is what you already know. However, I can tell you how we began, though there probably is a better way.

I try to "nip in the bud" the idea which the children get at home that they are coming to a place which belongs to someone else; that they must listen to the teacher because she is going to teach them many things; etc. So the first day of school or soon after, while they are still interested in "taking in" the details of their strange surroundings, I talk over the situation with them. It quite impresses them when I say that the room is not mine but theirs while they are in this grade; that everything in the room is for their use, not for mine.

This year we talked of the things we had and should use in common, then of the things that belonged to individuals, as our desks and hooks in the coat-room and each person's space in the cupboard. Right away the attitude of the children changed, and I believe it was because they were being met on a level with me; because each felt he had a place to fill and I took it for granted each was capable of filling it.

We talked a little bit of what is meant by an orderly room and coat-room and an orderly desk. There were many suggestions. I told them there was one thing that they had not mentioned that had much to do, in my estimation, with the appearance of a room, and that was the appearance of each child's desk when not in use. This brought up the question of what should be done with the desk chairs before we leave them. They all gave reasons for not having them pushed out into the room in a disorderly fashion, the most evident reasons being that they took up space, would be in visitors' way, and, aside from these, looked bad. This habit of pushing chairs up to desks became automatic in a week's time by allowing no exceptions to occur. As soon as a child had to be spoken to for running through the halls and for being noisy while working in the room (the

bad habit of "thinking out loud"), I made a point of having the group decide on a way to pass to classes and on ways of working. Thus some rules were drawn up by the group, and any violator of these rules was not a coworker with the group and in such instances had to suffer consequences determined upon by the group.

One thing I feel is very essential is to call the children "children," or "boys" and "girls"— not "little folks," or "little boys" and "little girls." If any adjective is used it should be "big" or "strong" —they hate being called "little."

Another little device that works is to tell them that quite often visitors ask to see what materials the children keep in the desks, and that a visitor can tell just what kind of person the child is who sits at the desk by the way the desk looks. This again appeals to the children's desire for social recognition. Of course they discover that if their desks are disorderly, things can't be found quickly. They have got now so they hate to feel they are keeping the group waiting because they can't find their books, owing to the mussed-up condition of their desks.

They were very much impressed by the word "responsible." I told them that to be called a responsible person was one of the finest things in the world, because it meant that one kept the rules and could be trusted to do things for the good of the group. When we acquired goldfish a responsible person was chosen to care for them for the sake of the fish and for the sake of the group which owned them. This was also the basis for choosing other monitors.

Such routine factors as falling quickly into line, wasting no time in getting down to work, getting a chair somewhere if one is lacking, never asking what to do but using one's own judgment—these are things that not only make it easy for the teacher but also are good for the pupils' growth. Such expressions as "I can't," "I have no paste" or "I have no paper" etc. are taboo. A responsible person will make a point of looking each morning to see whether he has all his materials or, if he forgets until too late, quietly get up and secure whatever is needed. A "frequent forgetter," however, is a very undesirable person to work with.

The children soon realize that a child is measured in worth by what he contributes to the group, and that his contribution must represent his maximum ability. Such expressions as the following make me feel they are "getting it." Frequently a child is seen

straightening his desk before school, and this remark is made: "Miss Hardy, what kind of a person sits at this desk?" Often a child says during a reading period, "If no one wastes any time for the group, maybe we can read the whole story today." They know that having to ask a child to keep the place properly, to keep his finger away from words, to try not to drop his book, etc. takes extra time away from reading. I might go on with more "sayings," but will not take your time. I believe they show that children can quickly get the "feeling" of law and order.

Yours truly,
Marjorie Hardy

General characteristics of this first-grade civic-moral training.—In interpreting this example of civic-moral teaching in a first grade we may note the following important general features:

1. It provided actual practice in moral behavior.
2. The pupils were made intelligent about the situation and were led to see the reasonableness of the correct practices.
3. Their interest was aroused through appeals to such instincts as ownership, the desire for social approval, etc.
4. A public sentiment was created in the pupil group in favor of correct behavior.
5. The teacher maintained a friendly, coöperative spirit.
6. She permitted no exceptions, thus observing one of the most important rules in habit formation.

If you desire further impressions of the nice balance that Miss Hardy maintains between (1) the spirit of happy, intelligent, coöperative child life and (2) careful habituation and drill, I suggest that you review Chapter V, in which are described at length her pleasant, progressive methods of teaching beginning reading.

3. **Combating the ravages of the tussock moth.**—Our third example of civic-moral training through actual practice is from the work of Miss Mary E. Payne, a departmental teacher of natural science in a suburb of Chicago. The same genial,

coöperative spirit prevailed in this case as in the two preceding examples; hence I shall not go into as great detail, but merely give a few quotations to indicate the general setting and procedure. The class was a fifth grade; the time, autumn. The situation, writes Miss Payne, was as follows:

The trees of the village were infested with caterpillars of the destructive tussock moth. The community takes great pride in the care and condition of its trees, and the school had a good variety on the playground. The nature-study classes and arbor-day programs had interested the children in knowing the trees and their history.

The fifth-grade class knew from previous observation and experience the life history, appearance, and characteristics of the Cecropia and sphinx caterpillars and moths, the monarch butterfly, and the silkworm. It was their custom to bring to the science class for identification any insects they found interesting. Several of the unique-looking caterpillars of the tussock moth had been brought in. The teacher knew that in neighboring towns, especially where the trees were smaller and less numerous, the devastations of this species had become serious. The pests were spreading rapidly and getting established in the village to such an extent that the village forester had published in the weekly paper an appeal to all citizens to rid their trees and shrubs of the caterpillars and egg masses as soon as possible. I planned this series of lessons to get the children to take action and to have a part in the local campaign.

The earlier lessons which Miss Payne conducted by observations, laboratory exercises, and discussions familiarized the children with the habits of the tussock moth, the reasons why birds do not destroy the pests, the special danger to the wonderful elms of the town, and the public appeal of the town forester for aid in dealing with the problem. Miss Payne's sketch of the fourth lesson depicts the children's discussion of their part in the campaign and reads as follows:

My plan in this lesson was to present to the class the forester's appeal for help, to renew and corroborate the observations made as to the life history of the moth, to add the forester's suggestions as to other methods of protection besides gathering cocoons,

in order to take care of many beyond reach, and to get the children to plan active participation in the campaign.

The forester's article was read and commented upon. The children expressed a desire to do something, saying: "We cleaned most of the egg-bearing cocoons off our trees on the playground." "Everyone ought to be able to get them off the trees in his yard." "How will we know that each one is doing it?" "Bring them in as we did the others." A girl who, during the summer, had been in a similar but more seriously affected village told that children there were paid for certain amounts brought in. This was not received very enthusiastically: "The scouts wouldn't take pay." "It would be fun just to see how many we could collect." "Let's choose sides." Two most enthusiastic boys were chosen for leaders. These then chose sides and set boxes, labeled for their sides, where children coming in could put in egg-bearing cocoons.

The teacher, referring to the forester's article, suggested that they try a way of taking care of those otherwise out of reach—by touching them with a sponge fastened on the end of a pole and soaked in creosote. Any who would bring their poles and sponges to school could use creosote from a supply furnished the school by the forester.

Later, the children's work was publicly recognized through the weekly paper as being of service to the community.

Additional general features illustrated.—In addition to some of the points which we noted in commenting on the two preceding examples of civic-moral training through actual behavior, this example illustrates the following general points:

1. Pupils may be trained by actual participation in affairs of the local community.

2. A knowledge of applied science may be helpful in directing this service along effective lines.

3. Discussions by the pupils may train them in organizing civic campaigns and make them intelligent thinkers concerning civic issues.

4. **Boy Scouts trained through graded "man-sized stunts for kids."**—A fourth example of civic-moral training through actual behavior is the work of the Boy Scouts, Camp Fire Girls,

and similar organizations, whose methods contain many suggestions for the effective organization of moral training in schools. We shall assume that the reader has some familiarity with the "stunts" of these groups, such as (in the case of the Scouts) knot-tying; bandaging; signaling; tracking; fire-building; camp cooking; the use of the compass; earning a bank deposit of one dollar; "seven-miles round trip alone"; distance judging; hiking; exploration; wearing the uniform; the "daily good turn"; "merit-badge promotion"; activities such as agriculture, advanced swimming, taxidermy; and such public-service activities as ushering at conventions, guiding strangers, etc. You may not be so familiar with the fact that at the outset the boy takes the Boy Scout Oath, which reads as follows:

> On my honor I will do my best:
> 1. To do my duty to God and my country, and to obey the Scout Law;
> 2. To help other people at all times;
> 3. To keep myself physically strong, mentally awake, and morally straight. (**2**: 20)

Furthermore, he learns the Scout Law, which teaches him that a Scout is trustworthy, loyal, helpful, friendly, courteous, kind, obedient, cheerful, thrifty, brave, clean, and reverent.

Thus we find in the Boy Scout scheme a fusing of (1) activities that appeal to the boy's interest in romance and adventure and physical play with (2) fine moral ideals and practices.

In evaluating the civic-moral training provided by these activities, Professor David Snedden wrote an unusually suggestive article for the *Teachers College Record* of January, 1917, which deserves very careful study by those who are interested in the practical organization of similar training. We shall quote merely one brief statement, as follows:

> The pedagogical genius . . . of the founders of the Boy Scout System of extra-school education . . . is especially shown: (1) in the fact that the ideals made conspicuous for the Scouts and the ac-

tivities enjoined are in very great degree "man-sized" and "man-used," but adapted to boys in that transitional period when they still want in large part to "behave like kids but be treated like men"; and (2) in the fact that the whole scheme of training is based on

GOOD CITIZENSHIP CARD

Savanna Education teaches that boys and girls become good citizens by practicing in the schools those valuable acts which are for social betterment out in the world. We believe the doing of things which make for social uplift is the fundamental work of any school. We believe that all those things—helpfulness, fairness, thoughtfulness, cleanliness—which constitute good citizenship can be developed in the schools only through actual appreciation of and participation in citizenship's invaluable values. We believe that these desirable ends which education must build upon may be developed in boys and girls while they are pursuing their daily round of work—on the playgrounds, in the recitation rooms, in the halls and during study.

This card is given to

_____

because———has shown the spirit of fairness, helpfulness, and thoughtfulness for———companions, which good citizenship implies.

Month of _____

GOOD CITIZENSHIP CARD

practicable "teaching units," "stunts," "graded steps," "projects," concrete achievements, specific opportunities for self-measurement, and self-criticism. (2: 28)

Another notable discussion of the civic-moral aspects of Boy Scout training is contained in a Teachers College dissertation entitled "The Function of Ideals and Attitudes in Social Education," by P. F. Voelker. Unique features of Voelker's work include experiments with groups of boys to determine the effects of specific instruction concerning trustworthiness, and the use of tests to measure the moral changes brought about.

5. **Score cards for rating behavior.**—Our fifth and final example of civic-moral training through actual behavior is the use of score cards for rating the moral qualities exhibited by pupils. A simple form is shown on the preceding page, namely, a "Good Citizenship Card," which is given once a month to members of each grade who receive a majority vote of the class.

Score card for hygienic living.—A more complex analysis of certain aspects of a pupil's behavior is required in the "Score Card for Hygienic Living" (5: 268), which is shown on page 519. The influence of this card may be shown by the manner in which it stimulated my son to brush his hair. I had brought the card home from my office one day, and the boy started to rate himself just for fun. He decided in advance that he wanted to make a score of at least 75. Fortunately his school and home training took care of some of the big items like sleeping with open windows, which was given a value of 10 points; hygienic dinner, valued at 10; vigorous exercise, 5; and retiring early, 10. His total, however, was only 74, so he looked for an easy "stunt" that he might add to raise his score to 75. He spotted "Hair brushed twenty-five times [strokes] or more," a practice which we had endeavored in vain to cultivate in him. He immediately adopted it for several days, much to the improvement of his appearance. I imagine he might have learned to be careful even in exploring his ears when washing if credit for this had been given in the score card.

Elaborate analysis of moral behavior in Horace Mann score card.—The most complete analysis and scoring of a pupil's moral characteristics and behavior that I have seen is the "Scale for Measuring the Importance of Habits of Good Citizenship," prepared for the Horace Mann School of Columbia University and published and discussed in the *Teachers College Record* for January, 1919, and January, 1922. The maximum score which a pupil can attain on this scale is 1000 points. Many items contribute to this total; for example, if he is refined in speech and manner he may receive 25 points; if or-

	Item	Highest Possible Score	My Score on Date
1	Sleeping in the open or with all bedroom windows wide open (screened in warm weather)	10	
2	Mattress (no feathers)	1	
3	Small pillow	1	
4	Bed clothing aired	1	
5	Rise regularly at 7 A. M. or earlier	2	
6	Light exercise on rising (five minutes)	2	
7	Cold bath, unless ill	3	
8	Hair brushed twenty-five times or more	2	
9	Teeth cleaned at least morning and night	5	
10	Individual towel	2	
11	Glass of water on rising	1	
12	Hygienic breakfast — thorough chewing	2	
	At least one item from each of three classes of food. *Class one:* fruit. *Class two:* bread, cereal, baked potatoes. *Class three:* eggs, bacon, milk, fish, cheese	3	
13	No candy or other food between meals	3	
14	No active exercise for twenty minutes after a hearty meal	3	
15	Carry books at arm's length and change hands often	1	
16	Get best possible light at school	2	
17	Use fully twenty minutes for lunch (not five minutes eat and forty run)	3	
18	Hygienic lunch — thorough chewing	2	
	At least one item from two classes. *Class one:* bread and butter, crackers. *Class two:* milk, soup, cold meat	2	
19	Two glasses of water in afternoon	2	
20	Vigorous exercise (baseball, running, etc.), thirty minutes	5	
21	Rest twenty minutes before dinner	1	
22	Hygienic dinner	10	
	Attractive table. Chew well. Eat moderately. At least one item from three classes. *Class one:* potatoes, bread, macaroni, rice. *Class two:* soup, stew, roast, baked beans, cheese. *Class three:* fruit, vegetables	2	
23	Study two hours[1] (read if lessons are easy)	2	
24	Light behind, above, and sufficient when studying	2	
25	Light exercise before retiring	1	
26	Retire regularly before 10 P. M.	10	
27	Glass of water before retiring	2	
28	Clean hands, face, and mouth before retiring	2	
29	Hygienic clothing	2	
30	Correct posture	3	
31	Hands and finger nails kept clean	3	
32	All meals at regular times (not to vary more than one hour)	2	
		100	

Use of coffee or tea: deduct 2 per cent
Use of alcohol or tobacco: deduct 20 per cent

SCORE CARD FOR HYGIENIC LIVING USED BY SCHOOL CHILDREN

[1] Time depends upon grade which child is attending.

derly, 25 points; if courteous, 45 points; if coöperative and considerate, 60 points; if obedient, 35 points; if characterized by helpful initiative, 60 points; if honest and reliable, 70 points.

Analysis of being courteous, coöperative, and considerate.—In order that teachers and pupils may understand clearly the acts or behavior that indicate the possession of these general qualities, each one, such as being courteous or being coöperative and considerate, is analyzed as shown on page 521.

Use in diagnosing needs of troublesome children.—It is not intended that all the details of this card should be used with all children, but it would prove particularly useful in analyzing the behavior of a troublesome child, diagnosing his special weaknesses and needs, and deciding upon specific treatment. In its more general features the card is made the basis of regular statements to parents upon the report form shown on page 522, as indicated in the following quotation:

> In the second part of the report card, only the habits and attitudes in which the child is notably strong or weak are reported, no mention being made of those which show average development. . . . Habits and attitudes "in which improvement has been marked" are also reported. (**4***a*: 39)

Parents are given reports of pupils' strong, weak, and improving qualities.—The desirability of furnishing to parents such a report upon the pupil's moral qualities is brought out in the following quotation:

> In spite of the fact that the Horace Mann School had attempted to lay implicit emphasis on character formation as the most vital function of the school, only occasional, if any, reference to progress in character development in the children was made to the parents [before the adoption of this report card]. Naturally the parents and pupils felt that the school was sending home on the regular report card the information about the child which was considered most important; and the teachers themselves, for a similar reason, were likely to view the instruction in the traditional school studies as their chief duty. (**4***a*: 36)

2. In Relation to Others and the Belongings of Others	C
J. Is Courteous	(45)
Allows older persons, or pupils in front of him, to pass through doorways or into the elevator first	4
Opens door for others	3
Offers book to a guest	3
Picks up something dropped by another	3
Waits quietly in turn for some privilege, as sharpening a pencil etc.	4
Is pleasant in greeting and uses a person's name when addressing him	4
Avoids abruptness of speech, as "sure," "yep," "say," etc.	3
Laughs or talks quietly, that he may not disturb others	4
Is quiet and mannerly at lunch	4
Is attentive when someone else is talking, whether it be another pupil, a teacher, a visitor, or a speaker in a public place	6
Is reverent in attitude during prayer	7
K. Is Coöperative and Considerate	(60)
Deports himself in an orderly manner in the halls, on the stairs, and elsewhere	4
Turns to the right in passing people	3
Takes his place in line quickly and quietly and does his part to keep the line in good formation	3
Closes door or desk quietly, and uses pencils and other articles without making unnecessary noise	3
Lives up to agreements; for example, the keeping of appointments	8
Is considerate in making requests of others, including helpers, and does not expect special favors or privileges	5
Takes no more than his fair share of time and attention, particularly in the recitation period	5
Enjoys working and playing with others, and shares good times with them when possible	5
Takes pleasure in the success of others	6
Is sympathetic with the opinions of those who differ with him	5
Gives up his own preferences when they interfere with the good of the group	7
Sympathizes with and gives intelligent help to others — at the proper time	6

The number opposite each item indicates the maximum amount a teacher may allow for each quality.

HORACE MANN SCALE FOR MEASURING THE IMPORTANCE OF HABITS OF GOOD CITIZENSHIP

(FRONT OF CARD)

Horace Mann Elementary School

1918–1919 **Parents' Report** **_____Quarter**

Name_____ Grade_____ Room_____

I. Studies

1. Above average
2. Below average
3. That show particular improvement
4. In which the child apparently is not working to the best of ___ ability

II. Habits and Attitudes Desirable for Good Citizenship

1. Which are unusually well developed
2. Which need careful training
3. In which improvement has been marked

Number of Days in Quarter_____ **Days Absent**_____ **Times Tardy**_____

(Detach here)

Name of Pupil_____

EXPLANATION

(REVERSE OF CARD)

The word "average" is used to indicate the achievement in a given subject of the middle half of a representative class. "Above average" or "below average" indicates the achievement of that per cent of the class (approximately 25 per cent) that is above or below this middle group. Only the best and the worst points are mentioned, both in studies and in habits and attitudes.

The studies unchecked in the list below are those which your child is pursuing. No specific mention of a subject on the other side of this sheet implies that the work is average.

Reading	Penmanship
English	Music
History	Fine Arts
Geography	Industrial Arts
Arithmetic	Physical Education
Science	

Pupils whose work is average or above average in the essential school subjects will be ready for promotion to the next grade at the close of the year.

(Detach here)

Parents' Comment

*Date*_____ *Signed*_____

PLEASE DETACH THIS SLIP AND RETURN IT PROMPTLY TO THE CLASSROOM TEACHER

CARD FOR REPORT TO PARENTS

Conclusion of examples of civic-moral training through actual behavior.—This concludes our first series of real examples of civic-moral training; namely, those which center in the pupil's actual behavior. The list included (1) a seventh-grade campaign against cheating; (2) a first-grade method of training pupils to be responsible; (3) a fifth-grade participation in a community campaign against the ravages of the tussock moth; (4) the "man-sized stunts for kids" organized for the Boy Scouts; and (5) score cards for rating the civic-moral attitudes and behavior of pupils. From these examples the reader should derive some concrete notions of the skillful teaching and varied devices that expert teachers and organizers have successfully used in training pupils in civic-moral behavior. These practices and devices ranged from the independent operations of individual talented teachers, such as those shown in our first three examples, to such a vast international organization as the Boy Scouts, or such an elaborate measurement scheme as the Horace Mann Score Card devised by the students of Professor E. L. Thorndike, the inspiring leader of the statistical-measurement movement in American education.

From The University of Chicago Elementary School

WHAT CIVIC-MORAL TRAINING DOES SCHOOL GARDENING OFFER?

We shall now turn to our second series of examples of civic-moral training; namely, those concerned less with actual practice in behavior and more with discussions of moral problems.

B. *Examples of Civic-Moral Training through Discussions*

Subjects included.—Under the general heading we shall include examples from the teaching of literature, biography, history, geography, and civics.

Literature. *Effect of story about helping old lady with basket.*—Some of the possibilities of moral instruction through the study of literature are suggested by an incident from my own experiences when a child in the fifth grade. In our school reader we had one day an illustrated story of two boys who assisted an old woman to carry a basket of apples. Each was appropriately rewarded by being given a large red apple. After school two other boys and I were walking up the railroad track and overtook an old woman carrying a wash basket full of clothes. Following the example in the story which we had read that day, we volunteered our services and carried the basket about a mile up the track to a mysterious cottage in the woods. The old woman gave us no red apples, but did show us her canary bird. We all arrived home late for supper and suffered the consequences. However, the incident illustrates the fact that the old-fashioned, made-for-the-purpose moral tales were sometimes effective in influencing pupils to perform worthy deeds.

How Dickens's "Christmas Carol" cured a boy of stinginess.—A more elaborate example of the use of literature to develop moral insight and sentiments is found in a description furnished me by Miss Lydia Weber of her methods of teaching Dickens's "Christmas Carol" just before the Christmas season. She wrote in part as follows:

I believe the story should be read rapidly and an effort made to discover by direct or indirect questioning the reaction the story may have had upon the different pupils. For example, after the first chapter had been read over thoughtfully, I conducted the lesson in the following manner:

Teacher. "Whom did you meet in Mr. Dickens's story?"

All hands went up, but since I knew the child to whom the concrete appealed, I directed my question to him. It is my experience that he is frequently the pupil whose ideals should be altered or raised by the morals represented in the story. Hence James was called upon.

James. "Nephew, Scrooge, ghost, and clerk."

Someone reminded him he had forgotten the two gentlemen soliciting for charity.

Teacher. "What made you mention the nephew first, James? Is he the most important character of our story?"

James. "Oh, no; but he was so funny and was always teasing his grouchy old uncle and didn't care what he said."

Teacher (with a laugh). "Grouchy, you say. Why?"

Whereupon James mentioned a few reasons, such as, "He wouldn't say anything but 'Bah' and 'Humbug,'" indicating that he did not comprehend the real Scrooge further than was expressed in these monosyllabic answers.

Teacher. "John, you seemed to think he was a grouch, too. Why?"

John. "Well, he was hard and sharp as flint, and had a grating voice."

Teacher. "Have you any proof of his being grouchy other than his manner toward his nephew?"

Reflecting a moment, John stated that it was mentioned in a paragraph. I asked him to find the statement and read the whole paragraph, since he was a good oral reader—one who could bring a vivid picture to the minds of his fellow pupils. At the conclusion of the paragraph someone volunteered the remark that Scrooge was chilly and made everyone else uncomfortably cold, as told in a certain paragraph, which the pupil then read. The pupils suggested readily the characteristics they had discovered. Thus, without further questioning, timid Mary volunteered, "Everyone was afraid of him,—man, woman, and child, and even the dogs leading their blind masters."

Teacher. "Don't you think you could frighten Scrooge?"

James. "No, he doesn't care what happens."

This idea for fearlessness on the part of Scrooge was later contrasted with the extreme fear displayed when the ghost appears.

Another Pupil. "Oh, he was awfully mean and stingy—he wouldn't even contribute toward the Christmas-dinner fund for the poor."

Another Pupil. "He was so stingy he didn't even want his obedient clerk to have Christmas Day off with pay."

After we had summarized all Scrooge's faults and had noticed certain historic or current parallels, I led the pupils to make comparisons within their own experience, which gradually turned to self-introspection in many cases. To give a concrete illustration, there was a lad who came from a home where every energy was bent upon accumulating a sum of money. It was constantly encouraged by the family. This seventh-grade boy at thirteen had, through his untiring efforts as a newsboy and through ability to sacrifice his personal wants, accumulated $350. He was so desirous of enlarging this sum that rather than buy his necessary school equipment, he would borrow paper, pencils, in fact everything he needed, from his schoolmates. Somehow he caught the idea of stinginess, and I could see he was overcoming the borrowing habit. He even gave liberally from his own purse that season toward the Christmas charity carried on in the building—a thing no member of that family had ever been known to do before.

There are many little characteristics, commonplace but lovely, which we bring out in studying the Bob Cratchit family life in much the same way, and these elicit from the school group a noticeable reaction. It may not be permanent, but that is due to lack of opportunity in the school to follow up the impressions and to combat thoroughly old habits and strong outside influences.

Third-grade studying and dramatizing of Sir Galahad's knightly qualities.—Many other examples of using literary selections as the basis of developing moral insight and sentiments have been described for me by the experienced teachers in my summer class. Thus a third-grade teacher, Miss Sara Little, described three lesson periods devoted to the story of Sir Galahad. These included a telling of the story, the purchase of a large picture of the knight to decorate the room, and a dramatization which involved the pupils' choosing for the principal character a boy who had Sir Galahad's qualities. The knight, said the pupils, was honest, truthful, noble, brave, polite, and kind and helped the old and weak. In selecting a boy suited to this part, they chose by secret ballot one of the

best boys in the class, who was kind, courteous, and never rude. After the play was given, the teacher occasionally used its moral lessons by saying in the case of rudeness or unkindness exhibited by pupils, "Do you think Sir Galahad would do that?" Occasionally she heard members of the class on the playground saying, "Oh, Sir Galahad wouldn't do that," thus showing that the instruction had carried beyond the schoolroom.

Principles and rules illustrated by these literature lessons. —In interpreting these examples of moral instruction through discussions of literature, we may note the following points:

1. They illustrate the fact that such instruction does sometimes actually influence the behavior of some pupils, as shown by the boys' carrying the old woman's basket.

2. Discussions by the pupils help the teacher to get an idea of each child's impressions and reactions.

3. These discussions, if skillfully directed, serve to bring out the strong, decent sentiments that are frequently latent in many of the pupils, and thus to formulate and objectify a helpful public sentiment in the group.

4. Dramatization is an expressional device that may be used for clarifying and vivifying moral ideas and sentiments, just as we found it used in Chapter IX for giving insight into contemporary social life.

5. A typical character, such as Scrooge or Sir Galahad, may serve to impress and symbolize moral ideas more effectively than would mere abstract or general principles.

6. In general, instruction that is intended to give moral insight and sentiments may well observe the same principles as were laid down in Section IV of our chapter on understanding social life. With slight modification these read as follows:

a. Appeal to some fundamental instinctive tendency, interest, or activity; for example, in the Sir Galahad lessons the instinctive interest in romance and dramatization was utilized.

b. In presenting moral examples through literature, select vivid representations of the trait that is to be discussed, such as Dickens's notable characterization of Scrooge.

c. Stimulate the pupils to elaborate and reflect upon their experiences from many angles and in many connections.

7. We shall have to add to these rules covering methods of giving clear, vivid ideas two others that are particularly important in civic-moral training; namely:

a. Endeavor to arouse the pupil's sympathies, hatreds, and other emotional responses, so as to cultivate an enthusiastic, impelling belief in correct behavior (such as being generous) and dislike of wrong behavior (such as being stingy).

b. Give pupils opportunities to turn their beliefs into habits of action, as illustrated by pupils' actually giving to the Christmas charities.

These rules probably apply also to civic-moral training that centers in discussions of biography, history, geography, and civics, to which we shall now turn our attention.

Biography. *Example of studying Stevenson's life for cheerfulness.*—An illustration of methods of using biography to inculcate moral ideas and sentiments was given me by Miss Margaret Dease, who used material from the life and writings of Robert Louis Stevenson to teach pupils the virtue of cheerfulness. Upon pupils who have been fascinated by Stevenson's lilting, haunting poems of childhood and who have been thrilled by his "Treasure Island" and "Kidnapped," the facts of his cheerfulness under great physical pain may make a very vivid impression. In addition, then, to giving the pupils many other interesting facts about Stevenson, Miss Dease centered their attention upon the following paragraph written by him the year before he died:

> For fourteen years I have not had a day's real health; I have wakened sick and gone to bed weary; and I have done my work unflinchingly. I have written in bed and written out of it, written in hemorrhages, written in sickness, written torn by coughing, writ-

ten when my head swam for weakness; and for so long, it seems to me I have won my wager and recovered my glove. I am better now, have been, rightfully speaking, since first I came to the Pacific; and still, few are the days when I am not in some physical distress. And the battle goes on—ill or well is a trifle; so as it goes. I was made for a contest, and the Powers have so willed that my battlefield should be this dingy, inglorious one of the bed and the physic bottle. At least I have not failed, but I would have preferred a place of trumpetings and the open air over my head.[1]

Accompanying this were other quotations which brought out Stevenson's belief in cheerfulness, such as his lines beginning, "There is no duty we so much underrate as the duty of being happy," and the lines of the "Celestial Surgeon," which reads in part:

If I have faltered more or less
In my great task of happiness;
If I have moved among my race
And shown no glorious morning face;
If beams from happy human eyes
Have moved me not; if morning skies,
Books, and my food, and summer rain
Knocked on my sullen heart in vain:—
Lord thy most pointed pleasure take
And stab my spirit broad awake;
Or, Lord if too obdurate I,
Choose thou, before that spirit die,
A piercing pain, a killing sin,
And to my dead heart run them in!

The reader will appreciate by this time that many devices calling for expression and action by the pupils may be used in order to carry out fully the moral instruction latent in this material. As I have presented the example here, it merely suggests the large possibilities of using the biography of a man who has given the pupils some of their greatest joys and thrills, to typify cheerfulness under great suffering. If skillfully handled

[1] Letters of Robert Louis Stevenson, p. 243. Charles Scribner's Sons, 1911.

according to some of the rules described above, similar cheerful behavior may be stimulated in some of the pupils.

Biographical teaching long esteemed.—Throughout history biographical material has been highly esteemed for its value in moral teaching. In our own country the lives of national leaders such as Washington, Franklin, and Lincoln have been extensively used. I regret that space forbids further description and evaluation of the classroom devices that are appropriate.

History, geography, and civics. *Contributions to civic-moral insight shown in earlier chapters.*—From the standpoint of giving an understanding of social needs and relationships, we have already thrown considerable light in our earlier chapters upon the services rendered by modern methods of studying history, geography, and community life or civics. Our long Chapter IX, on "Understanding Social Life," was specifically devoted to this matter, while some of the sample lessons in Chapter X, on "Problem-Solving," showed how pupils are given some understanding of the economic factors involved in such complex problems as the cost of sugar or the growth of London.

Moral decisions frequently require technical understanding of modern interdependence.—Owing to the complex interdependence of highly civilized communities and individuals in the world today, there is frequently need of very extensive technical information about society to enable a person to decide correctly some of the larger civic-moral issues that confront him. For example, a member of a labor union has to decide whether he will side with the more conservative labor leaders who believe in friendly coöperation with employers, or whether he will desert the established unions and join a labor organization that is bent upon destroying modern industry and instituting a revolution to overthrow the United States government. Or, to take another example, a voter has to decide whether to vote for a party that believes in a tariff which gives special protection to certain American industries, even though the tariff makes the voter pay more for his food and clothing, or whether to vote for a party

that believes in free trade which will enable the voter to make his personal purchases more cheaply, although it may throw some men out of work.

Civic lessons illustrating technical study of public health.— In order to illustrate the methods of class procedure in giving pupils insight into such technical civic problems, we quote the following account of an eighth-grade lesson in Indianapolis on the topic of public health:

> The lessons extended over several days, including observational work etc. Textbook assignment was made only after the class discussion was well under way.
>
> The pupils discussed informally what good health means to each one and gave examples from their own experiences of consequences of sickness. They discussed specific dangers to their own health, such as impure food, water, or air. They explained how they individually cared for their own health or how at times they were careless of it. They discussed how in many cases their health depended not merely on their own care but on the care of others, and how the danger to health is increased where many people are gathered together. They gave examples of the dependence of each upon others for health protection, as in the case of epidemics. They derived from this the need for coöperation in the interest of health. They illustrated such coöperation in the home and in the school, and mentioned rules that necessarily exist in home and school for health protection. They gave examples of neighborhood coöperation for health protection, such as combined efforts for clean yards, alleys, and streets. After observation and inquiry they reported on actual menaces to health in their own city, and made the logical deduction regarding the necessity for coöperation on the part of the entire city to avoid these dangers or to remove them. This raised the question as to whether the city did so coöperate, and led to a thorough discussion of how the city government provides the means for such coöperation. They went into detail in regard to how the department of health insures pure water for the use of each family, provides for the removal of garbage from their back doors, and prevents the spread of contagious diseases. This brought under review the regulations (laws, ordinances) bearing on these matters, the activities of the various health officers, and how these are supervised by the board

of health. The relation of the latter to the people was discussed, and also the responsibility of each citizen for coöperation with the board of health for the health of the community.

In a discussion of the various duties of the board of health, one boy asserted that "it passes pure-food laws." Another at once objected, "No, it is the national government that makes the pure-food laws." At once the horizon was broadened, the question why the national government acts in a case like this was discussed, and the relation of the great packing houses (for example) to the common health interests of the entire nation was disclosed. This led to a consideration of other national health interests and of what the national government is doing in this field. It suggested also the sphere of state activity, which was in turn related to the interests of the individual and to the activities of the local and the general government.[1]

Principles of teaching through civic-moral discussions. *Insight supplemented by moral beliefs and habits of action.*— It is obvious from such examples that a high grade of civic-moral *insight* is required in order to determine the answers to many complex practical civic-moral problems, and that such instruction as we described in the earlier chapters on social insight and problem-solving has very large civic-moral value. This instruction needs supplementing, however, in the two directions of *belief* and *action* which we indicated (under rule 7, p. 528) in discussing moral instruction through literature. If we summarize, then, the general impressions concerning civic-moral insight, belief, and action toward which our examples of moral instruction through discussion have been leading us, we may formulate the four following rules:

1. Give pupils an *extensive knowledge* of the intricate interdependence of human beings and of the forms of individual and group behavior that increase the happiness of the multitudes (as described in Chapter IX).

[1] From "Civic Education in Elementary Schools as illustrated in Indianapolis," by A. W. Dunn. *Bulletin No. 17* (1915), United States Bureau of Education, p. 22.

2. Give them *skill in correctly solving civic-moral problems* by practice in problem-solving in school (as described in Chapter X).

3. Cultivate in them *enthusiastic, impelling beliefs* in correct behavior and dislike of wrong behavior.

4. Give them opportunities to turn their beliefs into *habits of action* through actual practical behavior in and out of school.

Conclusion of Section I (on examples).—This concludes our first section, in which we have presented about ten examples of methods used in organizing civic-moral training. These examples we divided into two groups, as follows:

A. Examples of training through actual *behavior*, including a seventh grade overcoming cheating, a first grade learning responsibility, a fifth grade assisting the community in a campaign against the tussock moth, Boy Scouts practicing "man-sized stunts for kids," and schools using score cards for rating the civic-moral qualities of pupils.

B. Examples of civic-moral instruction through *discussions*, including literature lessons about Scrooge's stinginess and Sir Galahad's knightly qualities, biographical lessons about Stevenson's cheerfulness, and a civics lesson about public health.

In noting the general principles and rules of teaching illustrated by these examples, we came to use such psychological terminology as "insight and understanding," "skill in problem-solving," "impelling beliefs," "habits of action," etc. Hence in order to give us a clearer basis for our evaluation of such examples of civic-moral training, we shall devote Section II to a discussion of certain of the psychological aspects of the making of character.

Section II. Psychological Factors in the Development of Character

Two component parts of character: instinctive and acquired.—An individual's *character* consists of two sets of *characteristics*: (1) those that are *instinctive* and (2) those that are *acquired*. The instinctive characteristics are inborn,

or native. The acquired characteristics are the results of experience, including school education. In our efforts to change or develop the moral character of any pupil we should start our plans with a knowledge of what his particular inborn characteristics are, and then try to direct and modify these to the extent that scientific studies have shown to be possible and desirable.

A. *The Instinctive Elements in Character*

Measure your own instincts.—In order to make these abstract propositions more concrete let us examine a list of the human instincts that are obviously important in judging any pupil's *inborn* character. As you read each one you might judge the part it plays in your own character (which you probably know rather well) and in the characters of some of your friends. For example, in the case of the instinct of pugnacity, you might ask: "Am I very pugnacious by nature? How do I compare with Scrappy Bill, who goes around with a chip on his shoulder, always looking for a fight? Or how do I compare with timid little Susie, who is so lacking in pugnacity that she seldom resists any affront but lives on peaceful terms with the most aggressive tormentor?" You might proceed thus with each of the following instinctive elements in the characters of yourself and your acquaintances.

A list of a few select instincts important in civic-moral behavior.—From the long list of human instincts we shall select a few whose influence in determining moral or immoral social behavior is very profound. As you read each, therefore, you may not only think of the part it plays in individual characters that you know but also how it is related to crime and selfishness, on the one hand, or to virtue and altruism and social betterment, on the other.

1. *The hunting instinct.* This inborn characteristic of human beings Thorndike describes as "the natural tendency to pursue

and pounce upon moving or escaping objects that are of moderate size and not of offensive mien. In seizing the chased object, man is likely to throw himself upon it, bear it to the ground, choke and maul it until it is completely subdued, giving then a cry of triumph." Under savage conditions the value of such behavior as a means of procuring food is obvious. Under civilized conditions, however, this value largely disappears, as brought out by Thorndike in the following quotation:

> The presence of this tendency in man's nature under the conditions of civilized life gets him little food and much trouble. There being no wild animals to pursue, catch, and torment into submission or death, household pets, young and timid children, or even aunts, governesses, or nursemaids, if sufficiently yielding, provoke the responses from the young. The older indulge the propensity at great cost of time and money in hunting beasts, or at still greater cost of manhood in hounding Quakers, abolitionists, Jews, Chinamen, scabs, prophets, or suffragettes of the nonmilitant variety. Teasing, bullying, cruelty, are thus in part the results of one of nature's means of providing self and family with food, and what grew up as a pillar of human self-support has become so extravagant a luxury as to be almost a vice. (**13***b*: 19)

2. *The seize-and-keep instinct.* A simple example of this instinct is found in the bulldog's ferocious grip on something that it seizes in its mouth. Among children it early manifests itself in the tendency to reach for any object, to resist efforts of others to take the object away, and to become angry and cry when forcibly deprived of it. This instinct frequently impels selfishness and stealing. It is closely related to the complex instinct of ownership which motivates so many useful social activities.

3. *The fighting instinct.* This complex natural tendency in human beings is analyzed by Thorndike into several components. One of these is the tendency to *escape from restraint*, as manifested in the behavior of a child who is being held against his desire, and who responds by stiffening, writhing, kicking, pushing, slapping, biting, and scratching. Another is the tendency

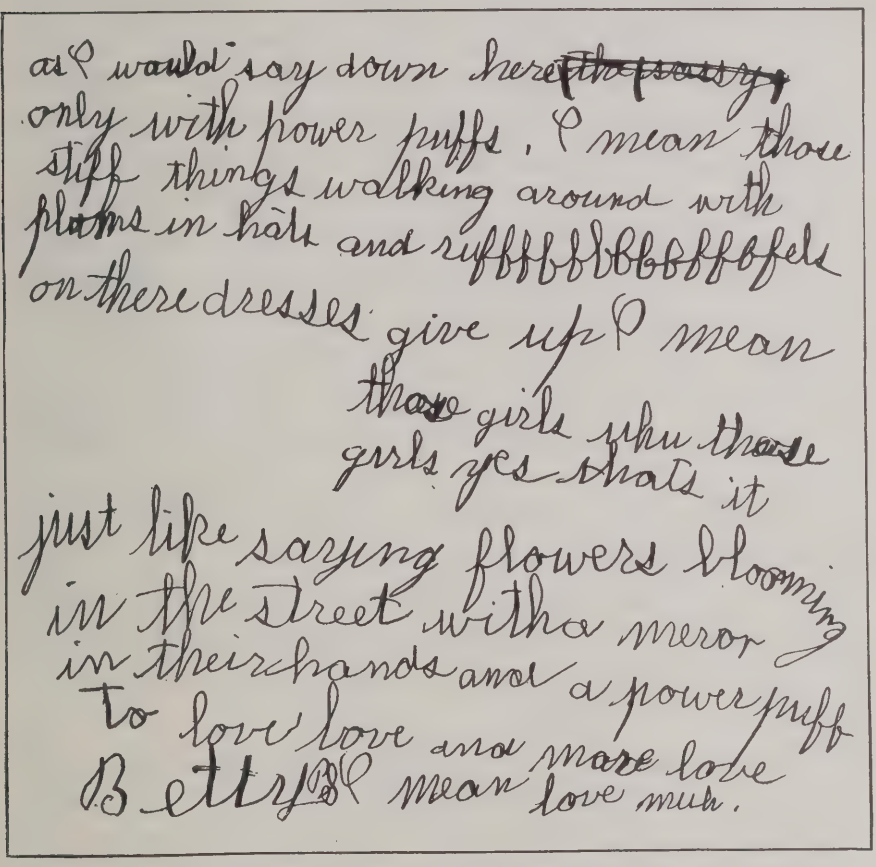
to *overcome a moving obstacle* by shoving, dodging around, hitting, and pulling. Other components of the complex fighting instinct include the tendencies to counterattack, to thrash around when in pain, and to subdue a rival, particularly in courtship. Simple examples of these fighting tendencies are seen in the schoolyard wrestling and scrapping of boys in the lower grades. In social life they are manifested not only in physical fighting but also in political and commercial contests, pugnacious scientific arguments, etc. They are among the chief causes of survival in primitive life and of discord in civilized life.

4. *The instincts of mastery and submission.* In describing these instincts Thorndike notes under the instinct of mastery the natural tendency to go up to an unprotesting human being, look him in the eye, inspect him generally, nudge or shove him, and to feel satisfied if he submits. Concerning the instinct of submission he says:

> There is a [natural] tendency to respond to the situation, "the presence of a human being larger than oneself, of angry or mastery aspect," and to blows and restraint—by submissive behavior. When weak from wounds, sickness or fatigue the tendency is stronger. The man who is bigger, who can outyell and outstare us, who can hit us without our hitting him, and who can keep us from moving, does originally extort a crestfallen, abashed physique and mind. Women in general are thus by original nature submissive to men in general. Submissive behavior is apparently not annoying when assumed as the instinctive response to its natural stimulus. Indeed, it is perhaps a common satisfier. Every human being thus tends by original nature to arrive at a status of mastery or submission toward every other human being, and even under the more intelligent customs of civilized life somewhat of the tendency persists in many men. (13*b*: 34)

Extreme manifestations of mastery and submission in social behavior are found in the naturally strong leadership exhibited by some persons and in the cringing following exhibited by others.

5. *The gregarious instinct.* This is the "tendency to seek the company of other beings rather than isolation." A special manifestation of it is in convivial gatherings, mere loafing


as I would say down here ~~the country~~
only with power puffs. I mean those
stiff things walking around with
plums in hats and ruffffffffffffffels
on there dresses give up I mean
those girls yhu those
girls yes thats it
just like saying flowers blooming
in the street with a meror
in their hands and a power puff
To love love and more love
Betty I mean love much.

NINE-YEAR-OLD BETTY'S DISDAIN FOR POWDER PUFFS, VANITY BOXES, ETC.

Evidently Betty has not yet reached the age where "power puffs," ruffles, and vanity "merrors" appeal to her and complicate the problem of her moral training. For an earlier portion of her letter see page 33

around or running with the gang. At the same time it is an important stimulus to church attendance in many communities.

6. *The instinctive desire for social approval.* This is the tendency to "feel pleased at the approval of others and to feel miserable upon being scorned or criticized." It is one of the chief

elements in moral control. If all persons could be led or directed so as to desire the approval of the best persons, great moral progress would result. The extreme individualist who cares nothing for the opinion of others is a troublesome person in any social group, be he a genius or an imbecile.

7. *The instinct of rivalry.* This is the "tendency to try to get ahead of others that are engaged in the same activity." The activity may be villainous, as in the case of greedy grabbing; or virtuous, as in the case of competing teams in a Red Cross drive.

8. *The instinct of sympathy.* This is the tendency "to be satisfied when others are happy and to be dissatisfied when others are wretched or in pain." It leads to some of the finest activities of life, such as nursing and charitable relief.

9. *The sex instinct.* This has been defined as the tendency to "notice, approach, and mate with members of the opposite sex." It keeps the race alive and is the cause of much happy romancing and family life, but it also impels much unwise and immoral behavior.

10. *The instinct of physical activity, including manipulation.* This manifests itself in tramping, hopping, skipping, jumping, throwing, building—in all the activities of games and industries.

11. *The instinct of mental activity.* This is the inborn tendency to have ideas, to think, to solve problems, to control one's attention. It is the basis of intellectual life, of practical planning for remote ends, of self-control, and of reflective moral behavior.

Other human instincts which we might list as having a bearing on the analysis of inborn character include fear, anger, motherly behavior, and the imitation of such particular forms of behavior as smiling, jabbering, running, etc. The eleven instincts which we have described above are sufficient to enable us to proceed with our discussion of the teacher's task in beginning her plans for the development of each pupil's character by first taking stock of the *inborn* qualities in his character.

Differences between individuals in the same instinct. *Normal distribution.*—When you start to study your pupils with respect to any instinct such as sympathy or pugnacity or rivalry, you will find that some pupils are extremely strong in the characteristic in question and others extremely weak, but most of them possess it in a moderate degree. For example, if you would try to picture the strength of the instinct of rivalry in a group of one hundred ten-year-old boys whom you had observed intimately in their competitive games and tests on many occasions, you might write the name of each boy on a slip of paper and then arrange these slips in five piles, labeled as follows:

Very weak in rivalry	Below the average in rivalry	Moderate (average) rivalry	Above the average in rivalry	Excessively strong in rivalry

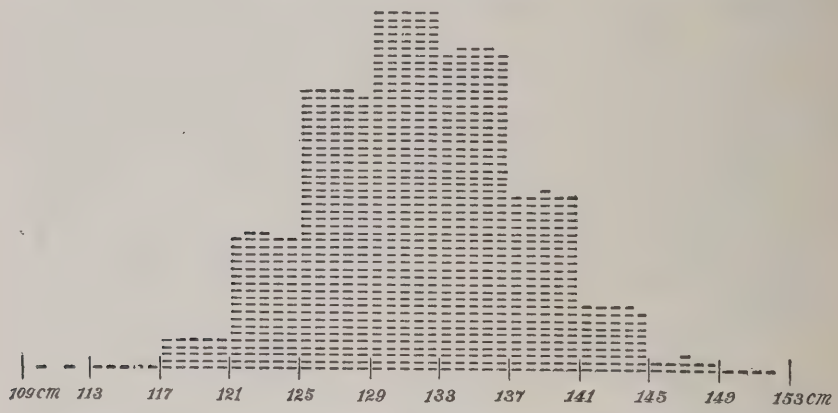
Or if you wanted to use the fighting instinct instead, you could follow a similar procedure after watching groups of third-grade boys on the playground for a long time. In the case of either instinct your piles of names would tend to contain something like the following numbers:

3	22	50	22	3
Very weak	Below the average	Moderate, or average	Above the average	Excessively strong

This kind of distribution is always found with any biological characteristic that is measured in a homogeneous group; for example, on page 540 is shown the distribution of the heights of one thousand ten-year-old boys. This form is known as the normal-frequency surface or normal-distribution curve.

Knowledge of normal distribution aids teacher to plan a moral drive.—Knowledge of the normal distribution enables the teacher—when she is planning, for example, to develop native sympathy into habitual charity among her pupils—to say: "Most of these children have enough of the instinct of

sympathy to make it a comparatively easy task to develop charitable habits. A few are so excessively sympathetic that they will be immediately enthusiastic helpers, but there are a few



APPROXIMATE NORMAL SURFACE OF FREQUENCY, REPRESENTING IN CENTIMETERS THE STATURE OF 1000 TEN-YEAR-OLD AMERICAN BOYS

APPROXIMATE NORMAL DISTRIBUTION CURVE. SAME DATA AS THAT PRESENTED ABOVE, BUT REPRESENTED HERE IN OUTLINE

From Thorndike's "Individuality"

who are so lacking in natural sympathy that it's going to be a hard pull to make them charitable. I'll have to see whether they haven't some other instinct in strong degree, such as rivalry or the desire for social approval, to which I can appeal

so as to get them into the charity game and develop in them habits of giving."

Scoring each pupil's instincts reveals his possibilities.—If, instead of regarding the group as a whole, the teacher gets to pondering, in the long watches of the night, the problem of developing the civic-moral character of any particular pupil, she could, as her first step, score him, as it were, in several of the more influential instincts. For example, a boy might be found to have these qualities:

Pugnacity—average
Submission—average
Gregariousness—excessive
Desire for approval—above the average
Rivalry—excessive
Physical activity—excessive
Mental activity—very weak

This youngster's gregariousness plus his other strong and weak qualities would lead him to "run with the gang" and do vigorously all the physical "stunts" that the gang leaders proposed and the gang esteemed. If it were a Y.M.C.A. gang, the boy's instincts might easily lead him into good citizenship; but if it were a truant gang, fond of robbing stores and delivery wagons, they might early land him in jail. I regret that space does not permit us further examples of the game of scoring pupils' instinctive characteristics. It may become quite fascinating to you if you are interested in human nature. In any case it is the first step to take in making plans for developing any pupil's character.

Specialized vocations demand different instinctive combinations.—Another line of thought that the teacher may pursue in her plans for character development for pupils is to picture to herself the social needs for different types of characters, such as the sympathetic nurse, the pugnacious soldier, the masterful executive leader, the submissive willing subordinate, the writer

of romantic verses, etc. When the teacher understands clearly these varied social needs, she can foresee more clearly the possibilities for useful civic-moral development in each of the varied personalities whose instinctive reactions she has a chance to stimulate and direct.

Encouraging the good and inhibiting the bad impulses.—One of the best statements concerning the general problem of encouraging and inhibiting instincts in the making of character is the following by E. L. Thorndike, one of our leading American authorities on the educational aspects of instinctive behavior.

> Harmful instincts . . . are weakened or inhibited (1) by *disuse* (that is, by depriving them of exercise, by not allowing the situations which evoke them to appear), (2) by *substitution* (that is, by forming the habit of meeting the situation in some other way), and (3) by *punishment*. Thus the tendency of a child to chase and torment a kitten may be inhibited by giving the child no kitten to play with, or by teaching him early to stroke and feed the kitten, or by punishing him in case he does pull its tail and throw stones at it.
>
> Disuse is convenient and is an excellent method to employ when the harmful tendency is transitory, but it is never quite sure. Punishment is ineffective in the case of very strong instincts. To be of service in any case, it must be so administered as to connect the discomfort closely with the harmful act. Substitution is in most cases by far the best method for the teacher's use. Habits of care for pets are the best preventive of cruelty to animals; to divide a class into two groups and give marks to the groups instead of to individuals—to substitute, that is, team emulation for individual emulation—may be the best cure for selfish ambition and envy; for a restless class, manual work is better than scolding.
>
> Some instincts apparently injurious may have bound up with them valuable traits of intellect and character, and consequently may require encouragement and especially redirection. The annoying questioning by very young children is part and parcel of a general intellectual impulse that is a chief source of mental growth; the disobedience and defiance of boys in their teens, often very troublesome to school and family life, is to some extent at least a necessary accompaniment of the general instinct of independence and mastery which comes at

adolescence and which is essential to vigorous manhood; awkwardness and lack of courtesy may be necessary features of a modesty which would suffer if they were artificially overcome. (13*a*: 23)

B. *The Acquired Components of Civic-Moral Character*

Habits, insight, beliefs.—If now we turn our attention from the inborn components of civic-moral character to those that are acquired through experience, we find the latter consisting of three types: (1) *habits* of civic-moral behavior; (2) *insight* into social relations, including *ideas* of right and wrong; (3) dynamic *beliefs, interests,* and *enthusiasms.* We shall take up each of these for brief consideration.

1. **Habits of civic-moral behavior.** *Specific detailed habits in animals and children.*—Specific habits, well automatized, are among the simplest and most primitive of the acquired elements in moral character and behavior. Even animals may be taught simple habits that seem to make them better residents in a community. For example, dogs may be taught to keep out of the house and to refrain from barking at strangers. Children, by much practice, may be trained to brush their teeth habitually every night before retiring. The civic-moral value of this habit is obvious. It not only makes the person more attractive and less disagreeable in company but through contributing to his general health keeps him in a better humor and makes him socially more efficient.

Rôle of specific habits illustrated in moral training of the feeble-minded.—In the development of the moral characters of the *feeble-minded* we find one of the clearest examples of the special function of specific habits in moral training, since these unfortunates are frequently unable to control their lives by civic-moral ideas. The following quotation from Leta Hollingworth brings out this point very clearly:

> Can the school do anything to instill morals in the mentally defective children? Can the school aid at all in preventing the crimes and misdemeanors which they commit as children and adults?

Improvement takes place in the feeble-minded . . . only through the formation of specific habits.

If it were possible for the school to foresee and reproduce every situation involving instinct to which the defective would have to respond in the course of life, and could by repetition connect permanently the desired response with each situation, it might insure morals just as it can insure skill. This being utterly impossible, the school can only select certain general situations, and strive to connect the desired response with each, by many repetitions. To the situation "a dumb animal" it may strive to attach the response "be kind"; to the situation "an object that is not mine" it may strive to attach the response "don't take it"; to the situation "being angry" it may strive to attach the response "don't strike."

The difficulty always is that the very limited intelligence is usually not capable of even this amount of generalization. The instruction tends to degenerate in the mind of the instructed into the much more concrete situation "being angry *at Johnny*" and the response "don't hit *him*," without affecting relations with Tom or Joe or with people at whom he will be angry ten years after leaving school. (**15** : 168)

Extensive rôle of habits in adult life. Emphasis by William James.—It is not only in the lives of domestic animals, children, and the feeble-minded, however, that good civic-moral habits are important. Throughout life they are essential components of a good character and of good behavior. In the life of adults such valuable semiautomatic behavior may range from such simple matters as brushing the teeth, which we used to illustrate habits in childhood, to such large civic habits as keeping one's name on the registration books and voting at all elections. In America some very noted chapters on habit by William James, our greatest American psychologist and philosopher, have served to popularize the psychological view of the importance of habit. These chapters are frequently made the basis of moral sermons by churchmen and educators. The chapter in his "Talks to Teachers" emphasizes the rôle of habit in the following terms:

It is very important that teachers should realize the importance of habit, and psychology helps us greatly at this point. We speak,

it is true, of good habits and of bad habits, but when people use the word "habit," in the majority of instances it is a bad habit which they have in mind. They talk of the smoking-habit and the swearing-habit and the drinking-habit, but not of the abstention-habit or the moderation-habit or the courage-habit. (**10**: 64)

So far as we are thus mere bundles of habit, we are stereotyped creatures, imitators and copiers of our past selves. And since this, under any circumstances, is what we always tend to become, it follows first of all that the teacher's prime concern should be to ingrain into the pupil that assortment of habits that shall be most useful to him throughout life. (**10**: 66)

Rules for habit formation: (1) *interest,* (2) *frequent opportunities,* (3) *no exceptions.*—The important rules to follow in cultivating civic-moral habits in pupils might well be derived from a careful study of the five examples of civic-moral training through actual behavior with which we opened this chapter. Perhaps the three most important of these rules, which we saw well illustrated in Miss McGuire's eighth-grade drive on cheating and in Miss Hardy's first-grade teaching of responsibility, are the following: (1) appeal to, arouse, and build upon the pupils' instinctive tendencies and interests; (2) give many and frequent opportunities for practicing the new habit; (3) permit no exceptions, but by firm, good-natured reminders hold the children to the new form of behavior until it is ingrained in their characters. As James says,

> Lie in wait . . . for the practical opportunities, be prompt to seize these as they pass, and thus at one operation get your pupils . . . to think, to feel, and to do. The strokes of *behavior* are what give the new set to the character and work the good habits into its organic tissue. (**10**: 71)

2. **Insight into social relations.**—The second division of the acquired components of civic-moral character we styled "insight into social relations, including ideas of right and wrong."

Methods of giving sympathetic insight into social relations.—In our chapter on understanding social life, we described at

length the methods used in a progressive elementary school to give pupils clear ideas of social needs, relations, processes, etc. Furthermore, in Section I of the present chapter (pp. 530–533) we indicated how necessary such instruction is in order that pupils may make intelligent moral decisions and behave wisely in our complex society of today.

Impulsive, inhibitive, and guiding power of ideas. Described by James.—In view of these elaborate preceding discussions we shall merely indicate here the great esteem attached by such psychologists as James to the influence of correct moral ideas when these are kept clearly before the mind. The following quotations from his chapter on "The Will" in his "Talks to Teachers" express this fact. Let us begin where he gives a concrete example. He says:

> I am lying in bed . . . and think it is time to get up; but alongside of this thought there is present to my mind a realization of the extreme coldness of the morning and the pleasantness of the warm bed. In such a situation the motor consequences of the first idea are blocked, and I may remain for half an hour or more with the two ideas oscillating before me in a kind of deadlock, which is what we call the state of hesitation or deliberation. In a case like this the deliberation can be resolved and the decision reached in either of two ways:
>
> 1. I may forget for a moment the thermometric conditions, and then the idea of getting up will immediately discharge into act; I shall suddenly find that I have got up—or
>
> 2. Still mindful of the freezing temperature, the thought of the duty of rising may become so pungent that it determines action in spite of inhibition. In the latter case I have a sense of energetic moral effort, and consider that I have done a virtuous act.
>
> The interesting thing to note is the extreme delicacy of the inhibitive machinery. A strong and urgent motor idea in the focus may be neutralized and made inoperative by the presence of the very faintest contradictory idea in the margin. For instance, I hold out my forefinger, and with closed eyes try to realize as vividly as possible that I hold a revolver in my hand and am pulling the trigger. I can even now fairly feel my finger quivering with the tendency to

contract; and if it were hitched to a recording apparatus, it would certainly betray its state of tension by registering incipient movements. Yet it does not actually crook, and the movement of pulling the trigger is not performed. Why not? Simply because, all concentrated though I am upon the idea of the movement, I nevertheless also realize the total conditions of the experiment, and in the back of my mind, so to speak, or in its fringe and margin, have the simultaneous idea that the movement is not to take place. The mere presence of that marginal intention, without effort, urgency, or emphasis, or any special reënforcement from my attention, suffices [for] the inhibitive effect. (**10**: 174–176)

Relation of habitual to deliberative social behavior.—James then couples this discussion of the influence of ideas with his earlier discussion of habits which we quoted above, by showing how certain ideas become in us habitually the forerunners of certain forms of action. For example, in the confirmed Republican voter the idea "He is a Republican" has become the habitual forerunner of approving remarks concerning Republican candidates and of acts of marking crosses before the names of such candidates on the ballot. However, if a personal enemy of the voter should happen to be a candidate, the voter finds himself in a conflict beween two sets or habits. In coupling his discussions of habits and of ideas as related to such dilemmas, James says:

How is it when an alternative is presented to you for choice and you are uncertain what you ought to do? You first hesitate and then you deliberate. And in what does your deliberation consist? It consists in trying to apperceive the case successively by a number of different ideas, which seem to fit it more or less, until at last you hit on one which seems to fit it exactly. If that be an idea which is a customary forerunner of action in you, which enters into one of your maxims of positive behavior, your hesitation ceases and you act immediately. If, on the other hand, it be an idea which carries inaction as its habitual result, if it ally itself with *prohibition*, then you unhesitatingly refrain. The problem is, you see, to find the right idea or conception for the case. This search for the right conception may take days or weeks. (**10**: 184–185)

Moral discrimination trained in problem-solving exercises.—Thus we see the importance of the practice in deliberate, reflective thinking concerning social relations which we described in Chapters IX and X and reviewed on pages 531 and 533 of the first section of this chapter.

Controlled attention essential in difficult moral situations.—Finally, James emphasizes the importance of our efforts of attention in holding firmly before ourselves the correct, helpful ideas of what to do in spite of the attractiveness of counteracting ones.

3. **Dynamic beliefs, interests, and enthusiasms.** *Illustrated in Roosevelt.*—Our third division of the acquired components of character we have labeled "dynamic beliefs, interests, and enthusiasms." We may illustrate the presence of such factors in a person's character by the life and temperament of Theodore Roosevelt, who impressed himself to an unusual degree upon his generation through the intensity of his beliefs, the breadth of his civic-moral interests, and the vigor of his enthusiasms. Moreover, he did not sit quietly by and merely feel intensely his beliefs and interests and enthusiasms, but he acted vigorously and consistently along the lines which they prompted. In this respect he illustrated our adjective "dynamic," which, as the opposite of "static," suggests vigorous action.

Psychological composition. Inborn drives associated with acquired ideas and habits.—The psychological composition of such beliefs, interests, and enthusiasms is more complex than in the case of the other acquired components of character; namely, habits and ideas. It is obvious that inborn, instinctive characteristics play an important part in a person's interests; thus, Roosevelt was by inborn nature intense, many-sided, vigorous, and enthusiastic. On the other hand, the particular directions that his beliefs, interests, and enthusiasms took were clearly acquired. Thus he was always keenly interested in cowboy life. Why? Because he had acquired a cowboy interest and enthusiasm while living for many years on ranches in the West.

Intensification by inspirational devices.—Not only may the particular directions taken by one's beliefs and interest be determined by experience, including education, but these beliefs, interests, and enthusiasms may be intensified in any pupil's character by using appropriate inspirational devices in the family, the school, the church, or in society at large. In the church the art of sermonizing has been studied for centuries in order to perfect its technique for converting young and old and for rendering beliefs so strong that a communicant will never stray. In politics oratory was especially perfected by the Romans, and notable scientific treatises were written upon the art by such great orators as Cicero. Many high-school pupils know the oration of Mark Antony in Shakespeare's "Julius Cæsar" as an example of the Roman skill in converting and convincing an audience and arousing it to vigorous action. Intense patriotic action is commonly stimulated in times of national crises by special devices of propaganda and inspiration, with which we all became familiar during the World War. It is in the need for such inspiration that we find the justification for much of the use of literature in teaching morals, since great literary artists have frequently used their expressional talents in formulating a moral message in a convincing, gripping manner which stimulates belief, interest, and enthusiastic action. The teacher who can take a coldly scientific moral truth and warm it up by devices that impel belief and conduct is engaged in an artistic activity to whose perfecting the greatest preachers, orators, and poets have devoted their best energies.

Technique for each should be described.—If we knew just what to say, it would be desirable to write about the devices to be used in the case of beliefs or strong convictions, in the case of interests, and in the case of enthusiasms. Doubtless we could find many suggestions if we examined the Roman writings on oratory, churchly works on sermonizing (or homiletics), etc. We shall have to confine ourselves, however, to a few remarks about each of these psychological stimuli to virtuous action.

Beliefs. Historic rôle illustrated by the Ten Commandments. —The influence of negative beliefs is illustrated in the behavior of the person who says, "I don't believe in gambling" and consistently avoids anything that savors of that vice. Sometimes this belief is rational; that is, the person understands what social troubles are caused by gambling and consequently avoids it. At other times the belief is merely the result of a habitual prohibition learned in church. As an example of the influence of a positive belief we have the behavior of the person who says, "I believe in being loyal to one's job, putting in one's best licks all the time, whether the boss is looking or not, and doing more than one is paid for." If we go into the religious field we find the enormous moral influence which has been exerted by belief in the Ten Commandments—belief that is sometimes motivated by fear, sometimes by habit, and sometimes by a rational enthusiasm for the social improvement that these rules of conduct have stimulated among many historic peoples and among many social groups of today.

Correct, many-sided interests. An aid to virtue.—The connection between virtuous behavior and correct, many-sided interests is so close that Herbart (1776–1841), a great and influential German writer on education, considered interest to be the one surest means of attaining virtue, as brought out in the following quotation:

> The ultimate purpose of instruction is contained in the notion, virtue. But in order to realize the final aim, another and nearer one must be set up. We may term it *many-sidedness of interest.* The word "interest" stands in general for that kind of mental activity which it is the business of instruction to incite. Mere information does not suffice, for this we think of as a supply, or store, of facts which a person might possess or lack and still remain the same being. But he who lays hold of his information and reaches out for more takes an interest in it. Since, however, this mental activity is varied, we need to add the qualification supplied by the term "many-sidedness."

Enthusiasms. Characteristic of dynamic leaders.—Finally, the rôle of enthusiasm in contributing to active civic virtue is easily recognized in dynamic social leaders such as Roosevelt. One of my colleagues has a somewhat similar personality and has been appropriately characterized as an "enthusiast" by an eminent psychologist and friend. When this enthusiast gets behind any movement it takes on vigorous life, and people begin to notice it and flock to join it. Such enthusiasm is not merely sentimental bubbling, however, but consists primarily of vigorous action by the enthusiast—action that inspires interest and belief and, through imitation and contagion, stimulates similar action in others.

Summary of psychological factors.—This concludes our general discussion of the psychological factors in character-building. Under the head of (*A*) instinctive characteristics, we noted the part played by eleven particular instincts, the differences between individuals in respect to each instinct, and the consequent necessity of taking stock of each pupil's peculiar combination of instinctive tendencies as the first step in planning to develop his character further. Under the head of (*B*) acquired characteristics, we considered (1) specific civic-moral habits which may be formed even by persons of low-grade intelligence; (2) civic-moral insight, which, in our present complicated society, calls for very elaborate knowledge and for skill in the reflective solution of civic-moral problems; and (3) dynamic beliefs, interests, and enthusiasms which impel to many-sided, vigorous, virtuous action.

Complexity of the problem of civic-moral training revealed.—Such a psychological study reveals the complexity of the problem of developing the civic-moral characters of any group of forty or fifty pupils with whom a teacher may be confronted. In the primary grades these pupils will range from imbeciles who can scarcely comprehend any moral ideas, to intelligent, virtuous youngsters who readily appreciate very subtle aspects of social relations. Only in the case of the

feeble-minded have we much scientific evidence concerning their moral possibilities and training. For this reason, and because this scientific knowledge will relieve many conscientious teachers from worrying about their failures in training these unfortunates, we shall devote a number of pages to a discussion of the scientific evidence relating to the civic-moral training of the feeble-minded.

C. *Special Application to the Feeble-minded*

Rôle of habits, intelligence, and instincts.—The scientific studies of feeble-minded persons have revealed very clearly the part played in their behavior by habits, intelligence, and instincts. The great importance of specific habits in their training has already been mentioned earlier in the chapter (p. 543). We shall now consider the influence of their intelligence and instincts upon their conduct.

Rôle of intelligence in feeble-minded behavior. *Example illustrating failure to comprehend social relations.*—The civic-moral problem presented by the poor intelligence of a feeble-minded person may be illustrated by the following example of an imbecile prisoner who had been arrested for breaking into a freight car in winter in search of shelter. Although only thirty-five years of age he had already been committed to the workhouse or penitentiary eight times. He had the mental ability of an average child of about six years, as illustrated by the following conversation which took place in a room of the observation ward:

Examiner. What place is this?
Prisoner. A room.
Q. What kind of room?
A. A big room.
Q. Why were you sent here?
A. Judge said I'd be well took care of here.
Q. How did you get before the judge?
A. I was in Bronx Park. Little drunk.

Q. (In startled, disapproving tones) You were *drunk*?
A. (Hastily) No, ma'am, not *drunk*.
Q. And where were you before you were in the park?
A. In penitentiary.
Q. What's a penitentiary?
A. Place where you stay and work.
Q. What do you stay for?
A. Place like Blackwell's Island.
Q. What kind of place is Blackwell's Island?
A. Place where you work. Like a prison.
Q. What's a prison?
A. Place where you do housework.
Q. And you *weren't* drunk this time, were you?
A. No, ma'am, *not* drunk.
Q. (In tone of authority) But you *were* drunk, weren't you?
A. (In hasty agreement) Yes, ma'am, *drunk*. (**15**: 162)

Feeble-minded easily made the tools of intelligent criminals.—It is obvious from this examination that this imbecile is not only incapable of understanding the real purposes of prison but could readily be made to agree to almost any suggestion and would easily be made the dupe and tool of more intelligent criminals.

Intelligence tests reveal and measure mental deficiency.—In order to assist public authorities to discover, grade, and diagnose cases of feeble-mindedness, intelligence tests were especially devised for this purpose. The most notable ones are those which were developed in France by Binet (Bēē nā′), about 1911, and adapted and improved in this country by Goddard and Terman. They have been given not only to feeble-minded but also to thousands of normal children, from whose records the average scores for children of each age have been ascertained. From these average scores of normal children it is possible to determine precisely how far below the average intelligence for his age any particular feeble-minded child falls who has been given the tests. He may be actually (or chronologically) ten years of age but make a score equal only to the average of five-year-olds.

In this case he would be said to have a chronological age of ten years but a mental age of five years; that is, his mental age is only 50 per cent of his chronological age. This figure, which is obtained by dividing a person's mental age by his chronological age, is called his intelligence quotient, or I. Q. In the case of average children the chronological age equals the mental age; hence their I. Q's are approximately 100 per cent. In the case of a child whose chronological age is ten years but whose mental age is twelve, the quotient, $\frac{\text{mental age}}{\text{chronological age}}$, is $\frac{12}{10}$, giving an I. Q. of 120 per cent. To simplify reference to these figures the term "per cent" is dropped, and a person is spoken of as having an I. Q. of 50 or 100 or 120, as the case may be.

Precise meaning of "feeble-minded" and of "idiot," "imbecile," and "moron."—By using the facts about mental ages which these tests reveal, it is becoming possible to attach quite a precise meaning to the term "feeble-minded" and the three subordinate terms—"idiots," "imbeciles," and "morons." These precise meanings are suggested by the very convenient table from H. H. Goddard's "Feeble-mindedness: its Causes and Consequences," given on page 555. In the right-hand column you will find the terms "idiot," "imbecile," and "moron," and in the left-hand column the mental ages which these unfortunates may eventually attain.[1] Thus a low-grade idiot never exceeds the mental age of average children under one year of age, while a high-grade moron (according to Goddard's classification) will never grow beyond the mental ability of average normal children of twelve. All these classes, from low-grade idiot to high-grade moron, are known as feeble-minded. In the

[1] Slight variations from the age limits given by Goddard are indicated by Terman, who says, "The adult *idiot* would range up to about three-year intelligence, . . . the adult imbecile would have a mental level between three and seven years, and the adult moron would range from about seven-year intelligence to eleven-year intelligence." (**16**: 79)

middle column of the table are given certain facts showing what kinds of manual work the various grades of feeble-minded may accomplish.

Mental Age	Industrial Capacity	Grade	
Under 1 year	(*a*) Helpless; (*b*) can walk; (*c*) with voluntary regard	Low	Idiot
1 year	Feeds self. Eats everything	Middle	
2 years	Eats discriminatingly (food from nonfood)	High	
3 years	No work. Plays a little	Low	Imbecile
4 years	Tries to help		
5 years	Only simplest tasks	Middle	
6 years	Tasks of short duration. Washes dishes	High	
7 years	Little errands in the house. Dusts	Low	Moron
8 years	Errands. Light work. Makes beds		
9 years	Heavier work. Scrubs. Mends. Lays bricks. Cares for bathroom		
10 years	Good institution helpers. Routine work	Middle	
11 years	Fairly complicated work with only occasional oversight	High	
12 years	Uses machinery. Can care for animals. No supervision for routine work. Cannot plan		

INDUSTRIAL CLASSIFICATION

Conclusion concerning incompetence to comprehend civic-moral ideas.—From such facts as we have given you can infer the civic-moral possibilities of the feeble-minded as far as these are determined by native intelligence, or ability to comprehend ideas, and by industrial possibilities. Thus our example of the prisoner who was examined showed us the case of an imbecile criminal of thirty-five years of age with a mental age of about six years, unable to comprehend the purposes of prisons in which he had been incarcerated eight times, but capable, according to

Goddard's table, of learning such routine manual tasks as washing dishes. As an illustration of the civic-moral possibilities of a high-grade moron with a mental age of twelve, we may quote Goddard's statement that such a person could learn to run an elevator but should not be trusted to do so. In order, now, to gain an understanding of the woeful possibilities of these low-grade intellects when their instincts prompt them to immoral acts, we shall turn our attention to the part played by instincts in the moral characters and behavior of the feeble-minded.

Instincts in the behavior of the feeble-minded. *Examples of failure to restrict native impulses.*—In our discussion of the instinctive components of character on pages 535 ff. we indicated how the fighting and sex instincts and the instinct to seize and keep, while they serve certain useful purposes when intelligently directed, may become the source of much social discord and immoral behavior. From a feeble-minded person in whom these instincts are especially strong we may consequently expect much immoral and criminal behavior, owing to the lack of intelligent inhibition by correct ideas of social relations. Below are examples of this type of uninhibited immoral behavior:

The following is the verbatim story of a woman thirty-four years old with a mental age of six years and six months,—an inmate of an institution for the feeble-minded. She appeared before the examiner with a blackened and swollen eye, and the following conversation took place:

Question. How did you get that black eye?

Answer. You know we have chicken for dinner on Sunday, and I took that girl's chicken away from her plate. So she pulled my hair first and she knocked me on the floor, and she landed on my stomach, too. But I give it to her back, though. I pulled her hair. That's all. See, that girl didn't want me to do it. And then I went up to wash my hands, because they was all greasy from holding on to the chicken. She didn't like me, that girl.

[Another case of the same sort concerns] a feeble-minded girl fifteen years of age, also an inmate of an institution, who appeared with a black eye.

Question. How did you get that black eye?

Answer. (After a sulky silence) Well, there's a girl and she called me a——Sheeney, and I called it to her back a——guinea, and she hit me in the eye, and I hit her in the nose. (**15**: 159)

Instincts involved. Pugnacity, resentment at being thwarted or scorned, etc.—In commenting on these cases Hollingworth indicates that the instinctive tendencies to fight and to resist having something taken away from one are involved in the first example; while, in connection with the second case, she says, "Fighting and assault, and at times murder, may be motivated by resentment at being scorned." Concerning the influence of the instinctive tendency to be angry when thwarted in the pursuit of a desired end, she says:

> Fighting, assault, and murder result, in the majority of [feeble-minded] cases, from anger at being thwarted. [Thus] a boy thirteen years [old], with a mental age of eight years, drew a knife on the teacher [who had] reproved him for something he had undertaken and had asked him to stop. He had been placed with this teacher, who was a good disciplinarian, because he had thrown a heavy flower-pot at his former teacher, when thwarted in some act. He remained good-natured and grinning so long as he was permitted to have his own way. (**15**: 158)

Crimes of feeble-minded impelled by instincts of acquisitiveness, pugnacity, and sex.—These incidents serve to put us in the general atmosphere of the immoral and criminal acts of the feeble-minded. As indicating in general the instincts that are concerned in such cases, Hollingworth states that the crimes of ninety-eight feeble-minded offenders committed to Sing Sing Prison had been classified as follows, on the basis of the instincts that impelled the crimes:

> Crimes which had their impulse in the instinct to take things, 58.
> Crimes which had their impulse in the instinct of pugnacity, 26.
> Crimes which had their impulse in the sex instinct, 13.
> Arson (no instinct assigned), 1.

Instinctive impulses not sole explanation of feeble-minded immorality.—However, the feeble-minded person's immoral behavior is not due merely to the presence of certain strong instincts such as acquisitiveness, pugnacity, and the sex impulses, since we can readily prove that these instincts are equally strong in many well-behaved persons. For example, some of our greatest social leaders are strong fighters, and our greatest financiers are characterized strongly by the instinct to acquire more and more wealth. Furthermore, says Hollingworth:

> Of the instincts which do not ordinarily lead to crime, such as the tendency to feel pleased at the approval of others, and the tendency to be satisfied by seeing others comfortable and happy, there is every reason to suppose that these are as well developed in the subnormal as are the instincts which lead more readily into difficulty. Mentally deficient children are as susceptible as others to nods and pats of approval, to smiles, praise, and rewards, and their affection attaches as readily to those who win their confidence. (**15**: 164)

Lack of inhibition by ideas that give grasp of social relations.—The reason why the strong instincts of acquisitiveness, pugnacity, and sex operate so banefully in the feeble-minded is because they are not checked or inhibited by ideas that give an intelligent grasp of social relations. In order to see the serious consequences to society we shall turn our attention to certain social effects resulting from the inheritance of feeble-mindedness.[1]

[1] One of the best accounts of the inheritance of feeble-mindedness is H. H. Goddard's study entitled "Feeble-mindedness: its Causes and its Consequences," in which he reports an investigation of the life histories of three hundred feeble-minded persons. He concludes that the feeble-minded condition was clearly due to heredity in 54 per cent of the cases, and probably due to heredity in 11.3 per cent. His summary of the causes is as follows:

Clearly due to heredity, 54 per cent.
Probably due to heredity, 11.3 per cent.
Ancestry showing brain diseases, 12 per cent.
Due to accident, 19 per cent.
Unexplained, 2.6 per cent.

Heredity in feeble-minded. *Enormous cost of descendants to society.*—The relation of inherited feeble-mindedness to "crime, pauperism, prostitution, vagrancy, illegitimacy, and all forms of social disorder" is most strikingly shown in the case of the records of certain families, such as the "Jukes," whose ancestral records have been studied in detail. In reporting one of these investigations Hollingworth says:

> One of the most widely known of similar studies is that of the Kallikaks, reported by Dr. Goddard. Martin Kallikak, a soldier in the Revolutionary War, had an illegitimate son by a feeble-minded girl whom he met in a tavern. In 1912 there were 480 traceable descendants of this union, 143 of whom were known as feeble-minded and many others of whom were of questionable mentality. The anti-social conduct of these descendants makes a long history.
>
> [On the other hand,] after his return from the war Martin Kallikak married a girl of good family. Of the descendants of this union 496 individuals were traced. No feeble-minded person was found among them. On the contrary, lawyers, educators, traders, physicians, and landowners predominated among them, and there were no criminals. (**15**: 212)
>
> In the case of the Jukes family 1258 members, half of them feeble-minded, were living in 1915 from an original stock of five sisters who had begun to propagate their kind about one hundred and thirty years before.
>
> In a detailed estimate of crime, pauperism, disease, and debauchery [connected with this family] Estabrook estimates that the descendants of the five Juke sisters have cost the taxpayers of the communities where they have resided about $2,516,685 in money, aside from the trouble and contamination of which they have been the source. (**15**: 212)

Scientific restriction of feeble-minded being developed.—Thus we see the woeful consequences to society of the propagation of feeble-minded children who lack sufficient native intelligence to develop ideas of social relations that will restrict the unlicensed action of their fighting, acquisitive, and sex instincts. Fortunately for society, scientific methods for testing and identifying

these unfortunates are rapidly being developed, along with public institutions and a public sentiment that will eventually greatly improve the moral status of the world through restricting the behavior of the feeble-minded and the propagation of their stock.

The school's problem. *Frequent presence of feeble-minded in lower grades.*—Meanwhile the teachers in the lower grades of school systems that have not developed segregated, special classes for the feeble-minded will be confronted with numerous puzzling or troublesome cases of this type. Thus Hollingworth gives as a typical example a first grade observed in a Nebraska town of four thousand inhabitants. The teacher had two rows of these pupils far beyond first-grade age. "Some had spent three or four years in the room, taking the time of the teacher from the other pupils and disturbing the class, held there to tasks which were irrelevant to their needs." In the third and fourth grades morons are likely to stick in considerable numbers. Such children, even in their intellectual education, are entailing an enormous waste of the teacher's energy and the state's money when they are kept with the regular classes instead of being placed under special instruction adapted to their peculiar needs. As regards the moral training of such children, if it happens that their pugnacious instincts are very strong, the teacher is confronted with a task that should be assigned only to specialized experts in institutions or classes for the feeble-minded.

Conclusion of discussion of civic-moral problems of feeble-minded.—This brings us to the end of our study of the psychological factors in character-making as illustrated in the case of the feeble-minded. I have seen fit to introduce this long account of this limited portion of the school population for three reasons: (1) because we have more objective, precise, scientific studies of character and character-making in the cases of the feeble-minded than in those of more normal pupils; (2) because the influence of inborn qualities—instincts and native intelligence—upon moral character has been more definitely diagnosed in such cases; and (3) because such cases give the

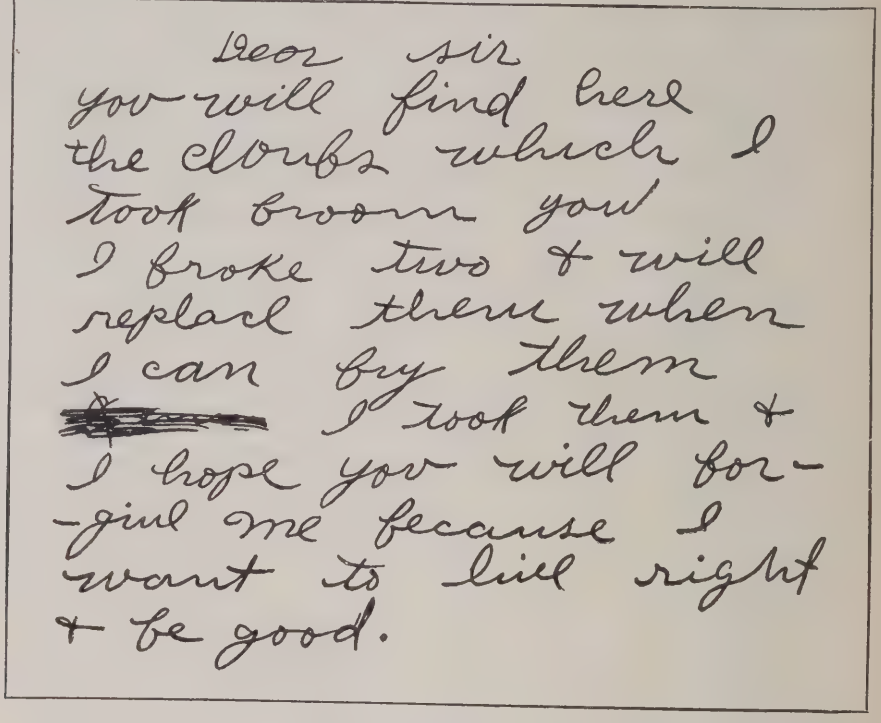
ordinary school so much trouble that a teacher frequently becomes distraught and discouraged in her futile efforts to reform them morally, whereas in a well-organized school system they would be segregated for specialized expert teaching adapted to their intellectual, industrial, and moral needs and deficiencies, thus enabling the ordinary teacher to proceed with the more pleasant task of developing the characters of normal children.

Summary of Sections I and II on practical and psychological aspects.—We have now completed two sections of our chapter on developing civic-moral ideals and efficiency. In Section I we gave ten examples illustrating two types of civic-moral training; namely, (*A*) training through actual behavior and (*B*) training through discussions of behavior. In Section II we considered the psychological components of moral character under two main headings: (*A*) instinctive inborn characteristics and (*B*) acquired characteristics. We saw under (*A*) that each pupil's character contains a combination of important instincts, such as pugnacity, sympathy, emulation, etc., which determine to a large extent his civic-moral behavior. Under (*B*) we saw how the acquired components of his character—his habits, ideas, beliefs, and interests—may determine the specific directions along which his instinctive impulses will impel him, and may inhibit instinctive behavior that is unsuited to civilized society. Finally, in the case of the feeble-minded we saw how their lack of intelligence frequently renders them incapable of wisely restricting their crude animal instincts, thus making them a moral menace to society. We noted how society, in order to protect itself against this menace, is developing intelligence tests and social practices and institutions to restrict the circle of activities of these unfortunate but contaminating individuals. In the next section of the chapter we shall see how democratic nations through their public schools are experimenting in developing a civic basis for moral teaching to replace the religious basis which the law has banished from many public elementary schools.

Section III. From Religious-Moral to Civic-Moral Training in Public Schools

A. *Religious-Moral Training*

Intimate association of religious and moral training throughout history.—Historically there has always been a close connection between moral training and religious training.


Dear sir
you will find here
the clothes which I
took broom your
I broke two & will
replace them when
I can buy them
I took them &
I hope you will for-
-give me because I
want to live right
& be good.

A REPENTANT BOY'S LETTER

In America we are all familiar with this intimate connection between religion and morals, as exhibited in the moral teachings of Sunday schools and churches and in the fact that ministers frequently assume moral leadership in their communities. We are also all familiar with individuals in whom such religious-moral teaching has been an influence to better behavior. For example, yesterday, while I was working on this chapter, an

unknown boy of about thirteen brought back a bag of golf clubs he had stolen from me two years before. He was weeping and very much agitated. I gathered from kindly questioning about the school and Sunday School which he attended that some religious influence had affected him. The facsimile (on page 562) of the note which he had written illustrates his general reformed attitude.

Strong possibilities in combination of Christian ethics and religious sanctions.—Not only has there been a very close connection between religion and morals but in the case of Christianity there is clear historic evidence of the beneficial influence of combining the strong sanction and force that religion possesses with such a helpful, wholesome ethical code as that of Jesus. Hence we shall always expect to find improvement of morals resulting from a strong religious interest in a fine moral code.

Early American public schools emphasized religion.—Furthermore, not only has there been an intimate connection between religious and moral training in the home, the church, and the Sunday School but even in the week-day elementary schools religious instruction has frequently been prominent. Our most impressive American examples are found in the early schools of the Puritans in Massachusetts, where the General Court, or legislative assembly, passed in 1647 a very famous law which reads in part as follows:

> It being one chief point of that old deluder, Satan, to keep men from a knowledge of the Scriptures, as in former times, by keeping them in an unknown tongue, so in these latter times, by persuading from the use of tongues, that so at last the true sense and meaning of the original might be clouded by false glosses of saint-seeming deceivers, that learning might not be buried in the grave of our fathers in church and commonwealth, the Lord assisting our endeavors. It is therefore ordered that every township in this jurisdiction, after the Lord has increased them to the number of fifty householders, shall then forthwith appoint one within their town to teach all such children as shall resort to him to write and read, etc.

FABLE. *Of the Boy that ſtole Apples*

AN old Man found a rude Boy upon one of his Trees, ſtealing Apples, and deſired him to come down ; but the young Sauce-Box told him plainly he would not. Won't you, ſays the old Man, then I will fetch you down ; ſo he pulled up ſome Turfs of Graſs, and threw at him ; but this only made the Youngſter laugh, to think the old Man ſhould pretend to beat him out of the Tree with Graſs only.

Well, well, ſays the old Man, if neither Words nor Graſs will do, I muſt try what Virtue there is in Stones ; ſo the old Man pelted him heartily with Stones, which ſoon made the young Chap haſten down from the Tree, and beg the old Man's Pardon.

EXAMPLE OF EARLY SECULAR MORAL LESSONS FOUND IN SCHOOL "SPELLERS" AND READERS

From the 1788 edition of Fleming's "The Universal Spelling Book"

In many other American states this same religious connection between elementary education and religion was prominent, so much so that as late as 1830 in some communities we find citizens insisting that the State had no right to concern itself with elementary schools—that these belonged exclusively to the Church.

B. *Civic-Moral Training*

Secularization of American public schools forced by sectarian religionists.—As time went on, all the American states developed public-school systems. Frequently religious instruction prevailed in these, especially where one religious sect predominated strongly in the community. When the children of several sects attended the same school, however, those citizens who believed very strongly in their own particular sectarian teachings began to fear the contaminating influences of religious instruction conducted by a teacher of a different sect. Hence these sectarians raised objections to such teaching, and eventually succeeded in eliminating religious instruction from public elementary schools in most states. The legal basis for this procedure is found in the general American theory requiring the separation of Church and State, and is further set down in state laws and constitutions. (**18**: 171–181)

Specific civic-moral instruction developed recently in secularized schools.—Thus we see how American public elementary schools progressively dropped religious-moral instruction and created the necessity for the development of moral instruction on a new basis. For a long time—throughout the nineteenth century, in fact—the schools were largely at sea concerning what to do. Practically the only specific moral instruction that was given was through the regular discipline of the school and through the "morals" attached to literature lessons. Since about 1900, however, very extensive and positive progress has been made in developing courses in community life and civics which provide a type of specific moral instruc-

The naughty GIRL *reformed.*

A CERTAIN little Girl uſed to be very naughty; ſhe frequently ſtrayed away from Home without the conſent of her Parents; was often quarrelſome and was ſometimes ſo very wicked as to tell Lies. One day ſhe went into an Orchard, and, without leave, took ſome Fruit and was carrying it off. A faithful Dog obſerved her and purſued her, and would have bitten her, if a Countryman had not at that Inſtant been paſſing who very humanely reſcued her from the Jaws of the furious Animal. The Danger ſhe was in cauſed her to reflect on her paſt bad Conduct — ſhe repented of her Folly, and became one of the beſt Children in the Neighbourhood.

ANOTHER EXAMPLE OF PLEASANT (?) MORALIZING TALES FROM EARLY TEXTBOOKS

From an 1803 edition of Perry's "Only Sure Guide to the English Tongue"

tion on a civic basis, thus completing the change suggested in the title of this section, "From Religious-Moral to Civic-Moral Training in Public Schools."

Government bulletins depict the character of this development.—One of the best methods of securing a perspective view of this recent American movement for the development of civic-moral instruction is to purchase the following bulletins of the United States Bureau of Education by addressing the Superintendent of Documents, Government Printing Office, Washington, D.C.:

1. "Civic Education in Elementary Schools as Illustrated in Indianapolis," by A. W. Dunn. *Bulletin No. 17*, 1915.
2. "Report on Social Studies in Secondary Education." *Bulletin No. 28*, 1916.
3. "Lessons in Community and National Life" (1917), edited by C. H. Judd and L. C. Marshall:

Series A, for the upper classes of high school.

Series B, for the first classes of high school and the upper classes of the elementary school.

Series C, for the intermediate grades of the elementary school.

4. "Lessons in Civics for the Three Primary Grades of City Schools," by Hannah M. Harris. *Teachers' Leaflet No. 9*, 1920.

France illustrates great national possibilities of civic-moral training.—To comprehend fully the vast significance of this movement for developing secular civic-moral instruction in great democracies, one must study it in France, where, since 1882, there has been a national system of civic-moral instruction in secular schools, with a national course of study and a great variety of textbooks from which teachers may choose. In France, better than in America, we see the fundamental relation of such instruction to the welfare of a democratic nation.

A means of saving the life of the Third Republic.—The French course in civic-moral instruction was developed in 1882 as a great means for saving the life of the Third Republic (1870) from being strangled by monarchists, as had been the fate of the

First Republic (1792) and the Second Republic (1848). In order to give this historic background, which is omitted from so many accounts of the French systems of instruction, but which is so fundamental in understanding this system, we include the following sketch of the three French revolutions and republics:

Bloody sacrifices of democratic revolution of 1789 succeeded by Napoleonic empire.—In 1789, following generations of terrific monarchical and ecclesiastical abuses, paralleled for a time by democratic propaganda led by Montesquieu and Rousseau, the great French Revolution began. It ran its course of meetings, oratory, constitutions, reforms, and terrors. For a short time it experimented with a constitutional monarchy. In 1792 was proclaimed the First Republic; but in 1793, in the midst of civil, religious, and foreign wars, a tyrannical dictatorship was instituted which "ground to powder the fragile liberties" that the revolution had evolved for the people. During the reign of terror which followed, the guillotine claimed nearly all the leaders of France who might have saved the republic, thus leaving it an easy matter for the sallow-faced young artillery officer—the Italian-born genius, Napoleon Bonaparte—to gain military leadership and displace the republic, as real ruler in 1799 and as ordained emperor in 1804.

Second Republic (1848) overthrown by Napoleon III in three years.—Monarchical control lasted from the first Napoleon's assumption of power to the Revolution of 1848, which proclaimed the second republic of France. However, through universal suffrage the untrained voters of France elected, owing to the glory of his name, Louis Napoleon as the first president of the Second Republic. Three years later (1851), by a coup d'état, he imprisoned most of the civil and military leaders of France and soon made himself emperor of the French. The Second Republic was dead.

Third Republic (1870) proclaimed by democratic Paris, but dominated during early years by monarchists.—The third republic of France, the republic of today, was born in the midst of

the Franco-Prussian War of 1870, after the Emperor Napoleon had been captured at Sedan. It was proclaimed in Paris by a crowd led by Gambetta, Jules Favre, and Jules Ferry, on September 4, 1870. Yet when a national assembly to conclude peace with Germany was elected by universal suffrage in 1871, it contained a majority of monarchists. Although it was convened merely to make peace, this assembly continued to exercise control until 1873, when it adopted for the republic a constitution which, it calculated, would keep the balance of power in the hands of the monarchists.

Legislative victory of republicans.—However, in the early elections under the new constitution the republicans of France triumphed. They immediately sought to insure the life of the Third Republic by appropriate legislation. This included the establishment of a national system of secular elementary schools in which no religious instruction should be permitted, but in which a special program of civic-moral teaching should prevail. It is unnecessary for us to go into the details of this scheme. Those who want them may read the book entitled "French Educational Ideals of Today," listed in reference 17 at the end of this chapter. Our chief purpose here is to realize that the great French statesmen who organized the scheme were concerned with the enormous problem of saving the life of a republic from monarchical plotters and of developing a healthy democratic intelligence and spirit in all citizens. Their plans for doing this included extending to all pupils, even those in the most remote rural secular schools, the benefits of a scheme of civic-moral teaching which had been initiated by the greatest minds of France and which educational leaders have since been endeavoring for some forty years to perfect.

Parallel of French and American developments.—In America our efforts—which closely parallel those of France—date, in their local developments, from about 1910 and, in their national developments, from the entrance of America into the World War in 1917. At this date the national government

undertook the publication of the "Lessons in Community and National Life," mentioned on page 567.

Aid from the social sciences.—In both the French and the American experiments in developing published courses of study and textbooks for teaching civic morality, great help has been afforded by the social sciences—particularly the scientific studies of economics, civics, and sociology. In fact, this assistance furnishes one of the crucial points in the new type of moral teaching, since the latter endeavors to get each pupil to understand how interdependent people are today and how his village or city, his state or nation, even the world, can be made better by following the precepts derived from scientific knowledge of wealth and poverty, good citizenship, etc. For example, in one of the American lessons on community life referred to above, we find the following opening paragraph:

> We saw in our earlier lessons how many are our wants and how complex is the social organization that has grown up in the effort to supply these wants. The frontiersman with his simple life and direct methods of getting food has disappeared, and a city has grown up on the site of his farm. Many of the people in the city never see the sources of their food and clothing and the other commodities which they use. We must go back in all of our studies of complex modern life to the natural resources which underlie our civilization. Coupled with these natural resources are human energy and human ingenuity which work over the materials supplied and ultimately produce the things which we use. These facts may be expressed in technical terms by saying that production depends on (1) natural resources, (2) labor, (3) capital, and (4) organization.[1]

Another extract which illustrates this effort to aid pupils to understand better the complex civic-moral *relationships* that prevail *in* modern business and government and *between* business and government is the following conclusion of an imaginary discussion between John, a young high-school graduate who is interested in getting a job, and his father, who is trying to give

[1] "Lessons in Community and National Life," Series A, p. 41.

him an idea of the part played by the *coöperation* of many *specialists* in modern life.

"And that isn't all of it," said his father. "My own work as a factory-inspector illustrates another [phase of this complex coöperation]. My business is to see that working conditions in factories are as good as the law requires. The law is, as you know, a set of rules that society has drawn up to govern the whole business. [To be sure,] many of the factories that I visit have conditions much better than the law requires. The owners are controlled far more by their own standards of right and by the opinion of other people—their friends or the public—than by law. . . . The state pays my salary, and the state gets the money from the taxpayers; so they all help in the process. Many laws about property rights also enter into the control of business. The men who made all these laws and the officers who administer them must be counted among the coöperators. Nor can we leave out the advertisers, through whom many of these specialists tell others of their wares and persuade them to think they need these wares. This brings in all the newspaper and magazine workers, the writers, the circulation men, the typesetters and press operators. The employment agencies and the men who operate them also have important duties. . . . Schools have trained many of these people for their work. Physicians have kept up their health. Actors and ministers have given them recreation and encouragement. Policemen and soldiers have given protection and security. All of these, therefore, are among the coöperators and must be counted in, whether we are talking about [the production of] a loaf of bread, a coat, a shoe, a song, a sermon, a hairpin, or a battleship."

"Well," said John, "the more I see of this thing, the more there is to see."[1]

Intelligent comprehension of solidarity gives new sanction to civic morality.—It is to this conception of interdependence—the dependence of each upon others for his own well-being—that modern leaders in the organization of civic-moral instruction look for a "sanction" that will appeal to pupils with as much force as the fears of hell or the hopes of heaven appeal under religious instruction. The French have given more thought to

[1] "Lessons in Community and National Life," Series A, p. 40.

this matter than Americans, who, as a people, are just awakening to the need and the problem. Thus, in one of the higher French textbooks on civic morality, we find six chapters dealing with "solidarity," which is defined as "the fact that the individual cannot realize the conditions of his organic and spiritual life except through the coöperation, voluntary or involuntary, of his fellows." Among the subtopics under solidarity in this text we find the following: (1) physical solidarity—heredity, contagion; (2) economic solidarity—meaning of wealth, its production as the result of collective labor, nature of the solidarity that results from the division of labor, solidarity relative to the consumption of wealth; (3) scientific solidarity—importance, science as a collective labor; (4) moral solidarity—imitation, the opinion of others, education; (5) duties that result from solidarity—not to harm or exploit society, to coöperate with good will toward social ends; (6) obligation created by the instruction one has received, the responsibility of those who know.

Be optimistic about favorable outcomes from civic-moral training.—I think, in view of our earlier discussion of the part played by intelligence in civic-moral behavior, we may be quite optimistic about the ultimate success of these comparatively new experiments in secular civic-moral training in great democracies. The line of argument which justifies this optimism would run somewhat as follows: (1) Our psychological analysis of character revealed the close connection between an intelligent understanding of social relations and civic-moral behavior. (2) Such an understanding is being facilitated by the rules for the guidance of society that are being discovered by modern social sciences, including medicine, economics, civics, sociology, education, etc. (3) Intelligent educated persons readily see the improvement in social living that results from following these rules. (4) Many of these persons are altruistic enough by nature to work unselfishly for the good of society according to such scientific rules. (5) Others, merely through imitation and the

desire for social approval, will fall in line. (6) Others, who may be naturally more selfish, will see that they and their families and relatives will benefit from similar social behavior. (7) A small class of feeble-minded and natural-born criminals will remain unaffected, but will be more and more restricted, as time goes on, through early scientific detection of their immoral tendencies and through scientific restriction of their operations. (8) As universal suffrage and universal education give increased power and wisdom to the masses, there will be increased momentum imparted to all movements that make for intelligent increase in the happiness of the multitudes, which is the purpose of moral democratic life.

Ideals and efficiency necessitate also inspiration and habits.—We should not forget, however, that such insight into social life as the social sciences may give the pupil needs to be supplemented by inspirational teaching that strengthens his civic-moral beliefs, interests, and enthusiasms and, by unremitting practice, develops habits and skill in civic-moral behavior. For this reason we included in the title of our chapter the words "ideals and efficiency." The word "ideals" suggests insight plus the emotional vigor of belief, interest, and enthusiasm. The word "efficiency" suggests skillful behavior, such that the learner does not merely stumble around with good intentions but actually and efficiently performs deeds that are socially serviceable. In our sample lessons in Section I we indicated how such training in developing civic-moral ideals and efficiency is actually in operation in many American classrooms. To the extent that your talents permit, you can undertake similar teaching, be it in the direction of improving moral insight, or moral feeling, or actual moral behavior.

Review Chapter I for perspective view.—At last we have reached the end of the discussion of our ten "types of teaching and learning." I wonder if the reader can name the types, divided into three groups as they are in the text. In order that you may keep the balanced point of view of all the types which we

invited in our opening chapter, I suggest that you review pages 1 to 10 in which a general perspective view of the whole book is given. By doing this we can make our introduction serve also as a conclusion, which is not inappropriate since each should give the reader a general overview of the whole.

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